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January/February 1992 $3.75

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Philips announces the new FM650SD UHF CB Radio.

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PHOTOSYNTHESIS

ON CHANNEL

APOLOGIES...

As you will see as you read the contents page, the do-it-yourself mast failed to make this issue despite the cover line. The cover goes to the printer several weeks before the general text and, when we set the cover lines, there was no doubt that the mast article would arrive in time for publication. It didn't.

There were several reasons for this, all unavoidable, however, the problems have now been sorted out and the article will definitely appear in the next issue.

YOU SCORED !

It seems that when Murphy turns his attention to you he usually gets it right with the result that you get it wrong. He struck fairly savagely on our last issue which in this instance proved pretty good for our readers. The cover price increased from $3.50 to $3.75 a couple of issues back, however, Murphy stuck his oar into our last issue with the result that it carried the old $3.50 price. This month it's back where it should be...a modest $3.75 for a pretty good read. Mind you, we near as doesn't matter managed to carry the cover line Jan/Feb, 1991...rather than 1992. Hopefully, Murphy will now leave us alone.

REPEATERS

Well, it's obvious that no-one out there has any better idea than us how to police UHF repeaters and keep the commercial operators off hobby frequencies. We received quite a few letters but none of them came up with a worthwhile plan...most in fact merely quoted their own experiences with commercials using CB repeaters. This simply confirmed what everyone knows, the commercial ops on CB repeaters are increasing in number all the time and DoTaC just isn't interested.

IT'S TIME

As the end of year rolls into sight it's time to again thank our ever increasing number of readers for their support. The mag's circulation has been on a steady increase for the past five years and the broadening of its scope to include communication areas other than just CB has been well received by all. Sure, we've also had a few grumbles about there not being enough basic CB, particularly in respect to 11 metres, however, there just isn't enough happening in this part of the spectrum to fill the pages as we did 10 years ago.

We must also thank our advertisers who obviously get the desired results, else why would we have some who have been in the mag for almost 15 years.

Thanks also to our lineup of contributors, all of whom are 'part-time journalists' who earn their keep in a multitude of professions but still find the time to pass on the latest information to readers.

Finally, our best wishes to everyone.

Keep scanning the frequencies, you might just pick up a signal from the elderly gentlemen in a red suit although I expect he'll have trouble getting down the chimney with a big log periodic antenna, a 1,000 channel scanner and a 150w 27MHz CB.

CB Action

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MOBILE COLINEAR
UHF 6 db GAIN WHIP

BECAUSE OF VARIOUS MOUNTING APPLICATIONS, ALL ANTENNAS SHOULD BE CHECKED FOR CORRECT VSWR

477 MHz

M476

MEGA BLASTER™ BY MOBILE ONE

FEATURES

This unique multiple stacked phased co-linear whip represents the **"State Of The Art"** in mobile whip technology, providing a low angle pattern with a massive 6db of gain **unmatched by any other similar mobile product.**

The M476 is constructed for broadband coverage and is **ideal for Wideband Scanning.**

The radiator has been coated with a rugged polyolefin heatshrink tubing to provide a strong, flexible and totally weather-resistant protective sheath.

SPECIFICATIONS

TYPE	3.5 Wave Phased Co-Linear Whip
ORDERCODE	M476
LENGTH	48" (1.2mtr)
WEIGHT	250 Grams
TUNING	Pretuned
FREQUENCY	450 ~ 500 MHz
IMPEDANCE	50 OHMS
MAX.POWER	50 WATTS
TERMINATION	5/16" x 26 TPI - FEMALE
PATTERN	OMNI DIRECTIONAL VERTICAL
APPLICATION	MOBILE
VSWR	≤ 1.5:1 over 20MHz

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by MOBILE ONE

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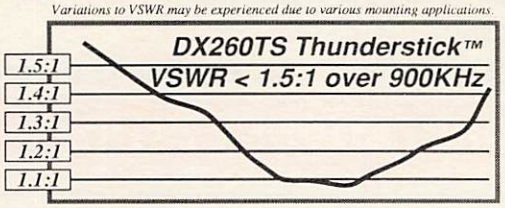

MHz .9 27 .1 .2 .3 .4 .5 .6

Specifications

Type	*Top Loaded Helical*
Ordercode	*DX260TS*
Length	*60 inch / 1.53metre*
Tuning	*Cut to tune*
Frequency	*26.9 ~ 28MHz*
Impedance	*50 ohms*
Max. Power	*500 watts*
Termination	*5/16 inch X 24 TPI female*
Pattern	*Omni directional vertical*
Mounting	*Bumper or bull bar*
VSWR	*< 1.5:1 over 900KHz*

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MOBILE ONE — MOBILE ANTENNA

27MHz CITIZENS BAND

BECAUSE OF VARIOUS MOUNTING APPLICATIONS, ALL ANTENNAS SHOULD BE CHECKED FOR CORRECT VSWR

26.5 ~ 29 MHz DX125SH/ DX140SH/ DX160SH

DX160SH

FEATURES

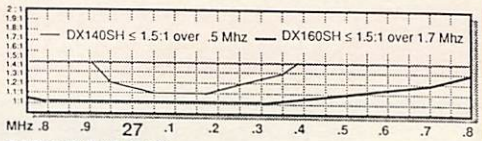
These special Whips incorporate the latest Computer Technology in continuous helical loading and are wound on a flexible tapered fibreglass former specifically designed to withstand the rugged and harsh Australian environment.

Models **DX125SH** and **DX140SH** have been wound with the exclusive "Mobile One Spaced Triaxial Spiroid" winding that produces a continuous field pattern specially tailored for these low profile antennas.

Model **DX160SH** has been wound with a **constant turn winding** which exhibits a similar radiation pattern as a full sized quarter wave whip, yet it is only 60" (1.53mtr) high!

All Superhelical antennas are coated with tough wearing polyolephin heatshrink tubing for total weather protection.

VSWR



SPECIFICATIONS

TYPE	MONO-POLE HELICAL WHIP
ORDERCODE	DX125SH, DX140SH, DX160SH
LENGTH	25 " (.63m), 40" (1m), 60" (1.53cm)
TUNING	CUT TO TUNE
FREQUENCY	26.5 ~ 29 MHz
IMPEDANCE	50 OHMS
MAX.POWER	50 WATTS
TERMINATION	5/16" x 26 TPI - Female
PATTERN	OMNI DIRECTIONAL VERTICAL
APPLICATION	ROOF or GUTTER MOUNT
VSWR	≤ 1.5:1 over 1.7MHz for 60" refer to above graph

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MOBILE ONE — DIPOLE MOUNT

MOBILE DIPOLE MOUNT ASSEMBLY

REG. DESIGN No. 6412 / 86 - PATENT PENDING No. PH2268

FEATURES

THE MOBILE DIPOLE MOUNT ASSEMBLY IS A NEW REVOLUTIONARY AND TOTALLY WEATHER-PROOF ANTENNA MOUNTING SYSTEM FOR THE HF AND VHF BANDS.

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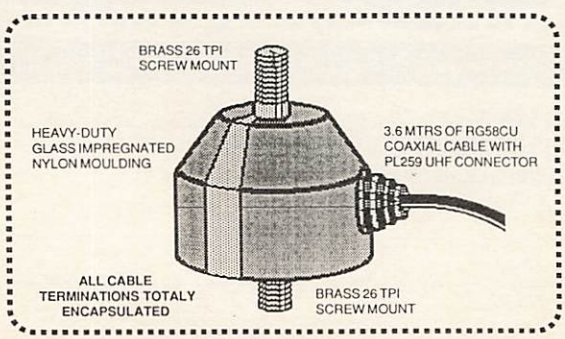
MOST OF THE EVERY DAY MOUNTING APPLICATIONS YOU CAN THINK OF WILL READILY UTILISE THE MOBILE DIPOLE MOUNT ASSEMBLY.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CBA/1-2

Newcomers Start Here

It should be stated right now that there is no special CB language.

Many newcomers believe that they require a lecture on the basics of CB language before they can operate on air. This is simply incorrect.

While some stations use esoteric CB jargon, all Australian CBers understand English and this is all you need to go on air.

A half hour spent listening before going on air for the first time will be time well spent as you will hear how to initiate a contact and how pass the conversation back to the other station and, really, that's about all there is to it.

Even so, while it is not essential that you know and understand some of the various abbreviations used and/or the amateur 'Q' code, it can be helpful to you.

That is what this introduction is all about. One of the first things you will hear is a ***QSO.***

A ***QSO*** *is simply a contact with another station. It derives from the amateur radio operator's* ***'Q' code*** *- a form of abbreviation used by amateurs when sending* ***CW*** *(continuous wave transmission) which is simply another way of saying morse code.*

Morse code *is not used in CB, however, a number of 'Q' code abbreviations are ...*

A ***QSL*** *is a card sent from one station to another confirming that these stations have been in radio contact. It is not sent after every contact, but, is usually exchanged after a DX contact.* ***DX*** *means long distance, usually overseas but often just interstate. If the station to which you are talking asks whether you QSL the operator is asking whether you will send him a QSL card to confirm the contact.*

A ***QTH*** *is the 'Q' code for location so, if you're asked* ***"what's your QTH?",*** *the station is asking where your station is located. It's just as easy to ask in plain English, but, it adds a bit of glamour if you say QTH instead.*

You'll hear many stations talking about ***SWR (usually pronounces swer - which is incorrect - it is SWR spoken as letters) and this stands for*** *Standing* ***W****ave* ***R****atio. This is essentially a measure of the antenna's effectiveness and is read off an* ***SWR meter.*** *You will learn what SWR is from this magazine or from a CB store. When you hear a station calling* ***CQ CQ*** *it means that he is looking for a contact with another station. CQ means* ***'seek you'*** *while CQDX CQDX is different (seek you long distance) in that the station only wants a long distance contact - not a local one.*

AM *stands for amplitude modulation while* ***SSB*** *stands for single sideband. If you have an* ***AM only rig*** *it's nice for everyone if you stay on the lower channels and, conversely, if you are using SSB you should restrict your activity to the upper channels.*

QSB *means that the signal has a tendency to fade - that is, it goes from strong to weak and back to strong again, sometimes over a period of seconds and other times over a period of minutes.*

It is not a fault of the station, but, of atmospheric conditions. If a station says there is QSB on your signal it means that your signal is fading and when this occurs it is best to keep your ***OVER*** *short or you are likely to lose the other station while you're talking.*

SKIP *is essentially the same as DX - if the skip 'is running' it means that there are interstate and/or overseas stations being heard.*

BEAM, YAGI and ARRAY *all mean much the same. They mean that the station is using an antenna system which effectively (and legally) increases the restricted power output of the CB rig and can be pointed at the other station for improved communication.*

A ***ROTATOR*** *is used to turn a beam,* ***Yagi*** *or array. Incidentally,* ***Yagi*** *is spelt with a capital Y as Yagi is the name of the inventor of the beam.*

Welcome to CB Action magazine - the only regular CB publication in Australia and also the oldest, having been first published in 1977.
CB is a form of radio communication which is popular around the world, however, unlike amateur radio, it is not necessary to pass an examination to go on air.
All that is needed is a licence and the equipment.
CB Action, though, is a little more than just CB. While CB is the backbone of the magazine, it also has reports and reviews on scanners, antennas, shortwave radios and other areas of general interest to radio communicators and listeners.
In the course of reading the magazine (and on air) it is probable that newcomers will encounter words which mean nothing to them. This short introduction is to help these readers understand CB terminology and its application.

LINEAR, BOOTS, AFTER-BURNER, LITTLE HELPER, *etc mean that the station is using illegal equipment to increase the power output and will eventually receive a call from DoTac.* ***DoTaC*** *is used in this magazine as an abbreviation for the Department of Transport and Communications - the authority charged with the regulations of CB radio.*

A ***POWER MIKE*** *is an after-market accessory which can also improve your station's 'talk power'. Whether or not they are legal is open to question, but, they probably aren't.*

QRM *is when another station is making it difficult to hear due to being too close to your own station, having a rig in poor condition, running illegal power, etc.* ***QRN,*** *however, is noise made by atmospheric conditions or, more likely, static caused by poorly installed electrical power lines out in the street.*

A ***SWL*** *is a* ***S****hort* ***W****ave* ***L****istener but an* ***XYL*** *is usually the wife - an ex-young lady.* ***YL*** *is of course young lady and a* ***DOUBLE BUBBLE*** *is a police vehicle.* ***GOOD BUDDY*** *is a somewhat derogatory term applied to operators who still use American style CB jargon such as, "what's your 10-20?" or "that's a big 10-4".*

This ***10 code*** *originated in America, but, is now rarely used as it indicates that the operator has what can be best termed a 'juvenile brain'.*

A ***BREAKER*** *is an operator who wants to get into an existing conversation and there's nothing wrong with* ***BREAKING*** *providing that you only call in the pause between overs.*

If you break between overs one of the stations will probably say ***ACKNOWLEDGE THE BREAKER*** *which means that you have been heard and will be invited to join in when the stations are ready - in other words standby and don't keep shouting.*

An ***ALLIGATOR*** *is another derogatory name which is applied to an operator who talks too much but doesn't listen - in short, all mouth and no ears.* ***SANDBAGGING*** *means to listen to a conversation but not join in yourself.*

A ***DUMMY LOAD*** *is a device which should be used when testing or tuning your rig. It can be purchased from any CB store and should be a must in your list of station equipment.*

UHF *stands for* ***U****ltra* ***H****igh* ***F****requency and is the 477 MHz CB service.*

LONGPATH *means that you are pointing away from a station you are speaking with rather than* ***SHORTPATH*** *which of course means the opposite.*

Different atmospheric conditions mean that at certain times you can communicate with (usually overseas) stations by sending your signal right around the world rather than by the most direct path. An operator who works out of the legal channel frequencies or runs illegal equipment is referred to as a ***PIRATE.***

An ***ATU*** *stands fro an* ***A****ntenna* ***T****uning* ***U****nit which is used to tune your antenna to a good match with your rig if the SWR is a little too high.*

It won't cure any major SWR problems, but, it can adjust a slightly high SWR reading to a 1:1 match with the transceiver. If you receive a visit from the ***RIs*** *you're probably in trouble for causing* ***TVI*** *-* ***T****elevision* ***I****nterference - or -* ***BCI*** *-* ***B****roadcast* ***I****nterference. RI stands for* ***Radio Inspector*** *- the gentlemen from DoTaC who call around if there are any complaints about your station. RIs are also often called* ***RED INDIANS.*** ***COAX*** *stands for coaxial cable, the link between your rig and the antenna while a* ***WHIP*** *is not something wielded by a leather-clad lady but is rather a generic tern for mobile antennae.*

A ***REPEATER*** *relays a UHF CB signal from one point to another so giving much greater range of communication and a repeater list is published in every second issue of this magazine. After all of the above we reiterate - it is not necessary to learn CB jargon to go on air. Sure it helps, but, it will all come in time - for now though just use commonsense English and if you don't understand something don't be afraid to ask - remember everyone you hear also had a first time on air.*

We hope you enjoy CB and CB Action.

"VKC TO ALL READERS"

By Robert Peel

In an effort to provide better coverage of metropolitan districts, the Victorian Police Force has implemented a number of channel and divisional changes while concentrating on metro areas, country districts have also seen some boundary moves.

Where previously a single UHF channel was employed, voting has been introduced to improve communications over a greater area. Voting is simply establishing several repeaters surrounding a district to capture the strongest signal from the mobiles and in turn deliver a steady transmission back.

Together with the introduction of voting in some areas, a number of district and divisional boundary changes took place.

The revised Metropolitan Districts are;

DISTRICT	HEAD STATION	DISTRICT NAME
A	Russell Street	Melbourne
B	Prahran	Prahran
C	Moorabbin	Moorabbin
D	Frankston	Nepean
E	Dandenong	Dandenong
F	Knox	Mountains
G	Nunawading	Maroondah
H	Heidelberg	Yarra
I	Broadmeadows	Broadmeadows
J	Altona North	Westgate
K	Geelong	Barwon

For country Victoria similar changes have occured.

The Country Districts are;

L	Warrnambool	Western
M	Ballarat	Highlands/Wimmera
N	Swan Hill	Mallee
O	Bendigo	Loddon/Campaspe
P	Wangaratta	Hume
Q	Morwell	Gippsland

For scanner enthusiasts, the most important changes that VKC have implemented are within the 64 UHF channels allocated for Australia wide police use.

The updated UHF channels are;

CH.NO.	FREQUENCY	LOCATION
01	467.850	
02	467.875	Car to car-simplex
03	467.900	P District buffer
04	467.925	M District & O District buffer
05	467.950	
06	467.975	
07	468.000	
08	468.025	
09	468.050	
10	468.075	
11	468.100	
12	468.125	B District & Water Police
13	468.150	J District
14	468.175	C District
15	468.200	J District
16	468.225	
17	468.250	F District
18	468.275	
19	468.300	
20	468.325	
21	468.350	F District
22	468.375	
23	468.400	P.S.G
24	468.425	TAC 1
25	468.450	
26	468.475	Traffic & Foot Patrols City Area
27	468.500	D District
28	468.525	C District
29	468.550	
30	468.575	Mobile Field Radio
31	468.600	State Emerg'y Service
32	468.625	State Emerg'y Service
33	468.650	State Emerg'y Service
34	468.675	D District
35	468.700	
36	468.725	A District
37	468.750	
38	468.775	
39	468.800	
40	468.825	I District
41	468.850	I District
42	468.875	D District
43	468.900	H District
44	468.925	F District
45	468.950	TAC 2 & Mobile Field Radio
46	468.975	
47	469.000	Mobile Field Radio
48	469.025	TAC 3 & Mobile Field Radio
49	469.050	Sandringham
50	469.075	
51	469.100	
52	469.125	
53	469.150	
54	469.175	
55	469.200	H District
56	469.225	H District
57	469.250	G District
58	469.275	
59	469.300	E District
60	469.325	Mobile Field Radio & Crossband
61	469.350	E District
62	469.375	I District
63	469.400	J District
64	469.425	E District
65	J District	Vote Group 13,15,63
66	I District	Vote Group 40,41,62
67	H District	Vote Group 43,55,56
68	F District	Vote Group 17,19,21,44
69	E District	Vote Group 59,61,64
70	D District	Vote Group 27,34,42
71	C District	Vote Group 17,28
72	K District	Vote Group 35,37,49, 50,51

Districts A, B and G are single channel

Victoria Police expert Robert Peel outlines some of the changes that have occured within VKC's extensive radio network.

users only, they are not part of a voting system. Channel 57, 469.250 MHz is somewhat unique because transmission are simulcast.

More common with television and commercial radio stations, it means transmissions occur simultaneously from all bases.

Apart from Traffic and Foot Patrols in and around the Melbourne CBD, channel 26 is also available for communications on the city's underground railway network.

The term Buffer Zones in channels 3 and 4 refers to metropolitan areas abutting country divisions, where communications between VHF zones and UHF zones are required.

Mobile Field Radio vans are usually identified as VKC 2, 3, 4 or 5 as the case maybe. Throughout the band plan a number of channels have been set aside for encrypted transmissions using DVP, or Digital Voice Privacy scrambling. As any attempt to monitor these channels would prove fruitless their identity has been omitted from the list.

A tip for users who wish to monitor vote groups.

Enter all frequencies from the group into your scanner, adjust the squelch control to halfway between where the squelch takes up, (threshold), and its full on limit.

As you move around the vote district, only the strongest signals from the nearest base will break the squelch. It may be necessary, due the the circuitry of individual scanners, to fine tune the squelch.

Now that 9+9the new districts are outlined and the channels changes clarified it is important to be able to identify the various unit callsigns.

The basic callsign allocations are;

SERIES	USER
200	Gen'l Duties station cars
300	Gen'l Duties divisional wagons
400	Crime cars
440-469	Boat Squad
470-499	Air Wing
500	C.I.B
500-539	Licensing
560-569	Gaming
570-599	Vice Squad
600	Community Policing
600-699	Women Police
700	Traffic Operations Group
800	Foot Patrols
900	Bases (Stations)

Whilst VKC maintain a list of nearly 99 radio codes, for practical purposes you will only hear a dozen or so actually being used on the air. **The codes are-**

1 ON PATROL
2 IN OFFICE
3 AT STATION
4 ON VEHICLE CHECK
5 ON PREMISES CHECK
6 AT COURT
7 MOBILE TO OFFICE
8 MOBILE TO RESIDENCE
9
10 DOMESTIC
11 ARMED SUSPECT
12 VEHICLE ACCIDENT
13 AMBULANCE
14 ASSAULT & ROB
15 ALARM-SILENT
16 AMBULANCE REQUIRED
17 ALARM-AUDIBLE
18 ASSAULT
19 POLICE REQ ASSIST
20 BURGLARY
21 VESSEL IN TROUBLE
22 PROVIDE TRANSPORT
23 PEEPING TOM
24 SUSPECT ON PREMISES
25 SUSPECT DISTURBED
26 BRAWL
27 LICENCE OFFENCE
28
29 GAMING
30 DRUNK
31 OPERATIONAL EXERCISE
32 DROWNING
33 DECEASED
34 WILFUL DAMAGE
35 KNIFING
36 LARCENY
37
38
39 SUSPICIOUS VEHICLE
40 FINGERPRINTS
41
42 ESCAPEE-MILITARY
43 FIRE
44
45 ESCAPEE-MENTAL
46 DRUNK
47 ESCAPEE-CIVILAN
49
50 BREAKING
51 INDECENT EXPOSURE
52
53 HIT & RUN
54
57
58 INDECENT BEHAVIOR
59
60 INCIDENT AT....
61-68
69 HOMICIDE
70 SMASH & GRAB
71 SPECIAL DUTY
72
73
74 RAPE
75
78 LOITERING
79 SHOOTING
80 WARRANT AT....
81 WANTED
82
83
84
85
86 WANTED, FELONY WARRANT
87 WOUNDING
88 WANTED, MISD WARRANT
89-96
97 PLANE OVERDUE
98 PLANE CRASH PENDING
99 PLANE CRASH

VKC like any other police force relies on radio as an important tool for law enforcement. The information contained herein is for the enjoyment of fellow Victorian scanner users.

The last thing the police in this state or any other for that matter, need is irresponsible dead heads arriving at a crime scene or following patrols about on their duties.

Do yourself and the hobby a favour and maintain a big distance between the police and yourself when it comes to monitoring. We don't need bad publicity.

"VKC out".

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For pilots only...

Icom IC-A20 Airband Transceiver

No, you haven't bought Australian Aviation magazine by mistake. This is a CBA review of a handheld transceiver designed for the VHF airband, as used by pilots across Australia and indeed around the world. Icom's IC-A20 is possibly the world's most popular VHF air handheld, and with the large number of readers who are not just airband enthusiasts but actually possess their pilots licence we thought it was worth a look.

To begin with, let's remind everyone that this rig is for licenced pilots only. Many pilots have taken to scanners like ducks to water, mostly to listen to a variety of airadio frequencies - ATIS, FISK, local ground and terminal channels.

But in place of a scanner, vast numbers of flyers are turning to the likes of the A20 - a handheld transceiver dedicated to the VHF airband of 108-136 MHz.

All aircraft must be permanently fitted with approved comms sets, of course, but the Icom has made a name for itself as a spare or back-up for the pilots' flightbag, as a tool for trainers and instructors, a two-in-one radio for the student pilot and even professional pilots who are keen on doing some listening at home after the day's activity. These are just some examples of the A20's wide employ.

But a word of caution.....radios such as these are intended for licenced pilots and no-one else. Yes, you could listen to the airband, but if that's all you want to do then a run-of-the-mill scanner may be the best buy. I would in fact hope that dealers would ask to sight a current pilot's licence before selling such a VHF airband transceiver. If there is none to see, all that's required is a simple "I'm sorry sir, but I can't help you."

Features

Like all modern synthesized communications equipment the IC-A20 is fully programmable from the keyboard. The memory can store 16 user-programmable channels from the full 108-136 MHz airband. 16 channels may not sound like much to the average scanner enthusiast or even CBer, but few pilots would find reason to complain. Working from a domestic airfield such as Bankstown or Essendon you'd only really need a handful. There are two power settings, a high level of 5 watts and a lower setting of around 1.6 watts.

The Icom IC-A20 has full scanning capability, which is useful in case you wish to monitor a company frequency as well as your ATC or FIS frequency. Competitive airband handhelds which don't scan are very annoying when you want to monitor more than one channel. The radio also has the capability to transmit/receive in duplex mode, so that you can tune separate nav and comms frequencies.

The IC-A20 looks good, performs well and is quite sensitive. It is well-built, weather-proof and dust-tight. What impressed me even more were the navigation functions. If your aircraft-mounted nav receiver gives up the ghost you just pull the A20 from your flightbag and you're back in business. You see, the A20 as a navigation feature which displays your heading on the radial of a VOR (VHF omni-directional radio range station). Punch in a local VOR frequency and the A20's LCD display reads course deviation in two degree increments. It can also indicate the difference between your desired course and your actual course flown, and even shows the pilot whether the entered course is online towards a VOR or heading away from it!

Everything You Need...

Once you've got your Icom A20 unpacked you are ready to take to the air and to the airwaves. The radio comes complete with a nicad battery pack, 240v wall charger, flexible antenna, belt clip, carry case, 12v DC cigarette lighter adaptor, rainproof cap and all manner of plugs you may need to connect up to DC power, external mike and speaker/earphone.

It's a great investment towards your own safety in the air. With the Icom on board your aircraft, you'll be able to work around failures of comms, transponder and even nav equipment.

"Come fly with me" beckoned Icom's best-selling VHF airband handheld to Bob Bell. So he did.....

And if you have a real emergency onboard you can stay on the air once you've let down and are well clear of the aircraft, continuing to transmit on either your last working frequency or on the emergency channel of 121.5 MHz (easily accessed on the IC-A20 with the press of just two buttons).

Being used to more straightforward programming of transceivers and scanners I found the IC-A20 to be a bit on the harder side. The usually detailed Icom handbook has all the diagrams and step-by-step instructions, but the actual process is not exactly simplicity itself.

Benchtest? No, Air-test!

Of course you shouldn't test a rig like the IC-A20 just on the ground. It belongs in the sky. So that's where we took it. On the way to pick up my flying partner, Bob Clark, I tuned the A20 into Bankstown Airport ATIS on 120.9 MHz, running the rig through the cigarette lighter to conserve battery power for when we really needed it.

Bob lives a few kilometres from the airport, in an area where reception isn't at all crash hot. In fact, on most handheld scanners operated inside a vehicle using the standard handheld flexible whip, Bankstown tower and SMC channels just can't be heard. I figured this would be a good starting point for field-testing the A20. Both frequencies came in at strength five with excellent readability. Score one for the A20.

Once at Bankstown's briefing office, I kept an ear on ATIS for any late changes while Bob lodged our flight plan. Our aircraft for this test was to be a Rockwell Commander, VH-MNZ ("Mike November Zulu"). The Commander is a wonderful little single-prop low-wing and this particular lady has had quite a workout in her first years, including a spell as test plane for a new coastal radar surveillance system recently commissioned by Australia's Coast Watch. We decided that where possible we would use the A20 instead of the Collins transceivers mounted in VH-MNZ. A final check of ATIS and once in receipt of "Delta" we gained departure clearance on 119.9 with Bankstown Ground.

Following a departure off runway 29 we turned north and tracked up the light aircraft lane to Manly, bearing north again for the Barrenjoey Headland. Around this time we called Sydney Flight Service for a radio check on 121.1, with a good response of "reading you five".

Then we turned west, tracking through uncontrolled airspace until we set course to the south for a privately-owned strip in The Oaks. Once on the ground we called again on 121.1, again with good results - clear communications on a 5 watt handheld at ground level some 40 forty nautical miles southwest of Sydney!

This is all well and good provided the battery pack is charged, an exercise which takes a full 15 hours through the wall charger supplied with the radio. Once done the IC-A20 should deliver a full eight hours of use. But listen carefully to the audio, because as soon as it starts to distort the battery is on its last legs and you have only moments before the radio dies.

Summary

This well designed handheld gets the thumbs up from me, and for many reasons including practicality, diversity of functions, performance, sensitivity, looks, ruggedness, and range of standard accessories. It would be my personal choice, and I would advise you to shop around for the best possible price on this excellent handheld.

(Thanks to Icom Australia's Duncan Baxter for the loan of this radio).

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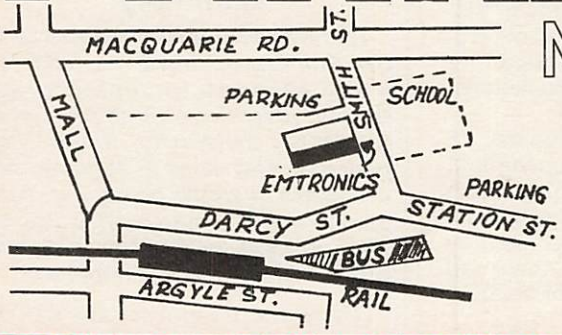

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hf utilities

with Richard Jary

WHERE TO LISTEN and WHAT'S BEING HEARD

Welcome all to the new-look HF Utilities. I know you've all appreciated Bob Bell's efforts of the past 12 months in keeping us up to date with what's been happening in the world of HF Utilities. Well, Bob will be writing several features for CBA in the issues to come, so I'm in the hot seat for HF Utilities.

Bob has passed anything he received on to me, however, in any transfer there are bound to be minor hiccups, so if you've sent anything in and it doesn't appear, our apologies. Also a reminder that I may not know your "nicknames" so please tell me in your next letter. And my thanks to those who have written welcoming me to the section.

Australian Coast Radio

For those who like logging as much as possible - and don't we all - the majority of Australia's Coast Radio stations will be closing from 31 January 1992, as part of the Global Maritime Distress and Safety System, which is an international agreement between major maritime nations on the Safety Of Life At Sea service. Hopefully we'll be able to have a feature article in the near future with some history on these stations.

Stations to close are VIH Hobart, VIE Esperance, Carnarvon, Broome, VIT Thursday Island, and VIR Rockhampton. VIA Adelaide will close a year later, with VIB Brisbane ceasing 24-hour operation. Future needs will be adequately met by the stations in Sydney, Perth, Townsville and Darwin, with Melbourne catering for specialised coverage in southern waters.

Only two of the stations to be closed offer Radphone services, which allow public connection to the public telephone service operated of course by Telecom. VIH Hobart has one channel for calling, designated 404 it operates on demand during daylight hours on 4366 kHz transmit and 4074 receive.

VIR Rockhampton operates on Channel 417, 4405 transmit and 4113 receive, again during daylight hours.

Remember that listening to phone traffic on any channel, HF or otherwise, is illegal.

Fax Freqs

Bob has mentioned that despite his hopes, he has had trouble getting people to report on the non-voice modes. These include fax and radio-teletype, and this month Tom from Western Australia has sent some nice weather maps received from the various US Naval Command stations. For those who would like to ask for more information they can be contacted at ***US Naval Command Centre, Comnavmarianas, Box 12 FPO San Francisco 96630-2926***

A schedule of their fax broadcasts is transmitted from Guam at 1320 UTC daily from station NMC, logged by Tom on 12727.5 kHz. If you have a fax decoder to tune in, one easy station to hear comes from the Naval Station in Canberra, and transmits all day on 5100 kHz. I've got some very nice pictures from there on my small kit decoder and Sony ICF6800 shortwave set.

Tom has also sent in a list of commonly used Pacific and Indian Ocean Facsimile frequencies. These are:

- ***NPM Honolulu:*** *2122, 4855, 9398, 14928 and 21839 kHz.*
- ***KVM70 Honolulu:*** *5037.5, 7770, 9982.5, 11090, 13627.5, 16135 and 22331.5 kHz.*
- ***JMH and JMJ Tokyo:*** *3365, 3622.5, 5405, 7305, 9438, 9970, 13597, 14692.5, 18130, 18220, 22770 and 23523 kHz.*
- ***RXB and RXO Khabarovsk USSR:*** *4516.7, 7475, 9230, 14737 and 19257 kHz.*
- ***HZN Jeddah, Saudi Arabia:*** *5452, 10296 and 11504 kHz.*
- ***AXI Darwin:*** *5755, 7535, 10555, 15615 and 18060 kHz.*
- ***AXM Melbourne:*** *5100, 11030, 13920, 19690 and 20469 kHz.*
- ***5YE Nairobi, Kenya:*** *6956, 9045, 10115, 10387, 11127, 12317, 17367 and 22388 kHz.*
- ***ATA/ATP/ATE/ATV/ATQ New Delhi:*** *4993.5, 7403, 10107.5, 14842 and 18233 kHz.*
- ***HSW Bangkok:*** *6765, 7395 and 17519 kHz.*
- ***ZKLF Auckland:*** *5807, 9559, 13550 and 16222 kHz.*

I believe the station listed as Melbourne actually uses the Belconnen transmitters in Canberra, perhaps someone in the know can tell us.

Many of these do QSL, "Sunset" from NSW has sent in QSLs from NMO Honolulu and NOJ Kodiak, Alaska. If you want to try, their address is ***USCG Communication Station, Wahiawa, HI 96786-3050, or Coast Guard Communication Station, Post Office Box 17, Kodiak, Alaska 99619.***

We've also got a schedule for NMO, they broadcast virtually 24 hours a day using CW, SITOR and Voice. The station has two transmitters, running 1 and 10 kW. The voice weather broadcasts can be heard at 0545 AND 1145 UTC on 6501 and 8764 kHz, and at 1745 and 2345 UTC on 8764 and 13089 kHz.

US Coast Guard

The USCG operates a number of channels. Most channels are used by several of the stations, some you may hear are NMN Portsmouth, Virginia; NMG New Orleans, Louisiana; NMA Miama, Florida; NMC San Francisco, California; and NMO Honolulu, Hawaii. They use the common maritime channels of 4428.7, 6506.4, 8765.4, 13113.2, and 17307.3 kHz. These are the working frequencies for most initial ship-to-shore contacts.

Jary's Jottings

A new organisation called the "Australian Group of Radio Monitors" has been recently formed, and is based in Perth. Its aim is to promote world-wide radio monitoring as a hobby, on all modes from LW to FM, and including utilities. If you would like to help, or find out more, its address is ***28 Weston Way, Kardinya, WA 6163.***

More on Space Shuttles after last issue's news, various of the support craft use HF. Some you may hear are the support ships on 5810 kHz; support aircraft on 6693, 6708, 7461, 7765, 8981, 9043, 13170 and 18200; Kennedy Space Centre on 6723 and 13213; NASA Pacific Support on 11205; Booster rocket recovery 11405; Atlantic support 8972; NASA tracking 14456 and 15015; Mission Control and Shuttle voice on 21085.8; and finally Cape Kennedy on 20390 kHz.

Nigel from Perth picked up an interesting logging on 6510 kHz from 1215 to 1400 UTC back on 22 August. Callsigns were Fremantle Control, Geraldton, Bunbury, Taylor Taylor and Taylor 2.

The traffic consisted of messages between Patrol Boat Geraldton and the Nowra Coastwatch Canberra Task Commander. Much was coded, however included traffic such as "Vessel stopped after warning shots, first one white flare then 7.st62mm fired across bow", "Boarding party on board", "Crew detained hostile and sabotaged main engines".

As nothing was seen in the papers about an illegal fishing vessel Nigel presumes it may have been an exercise, exciting stuff all the same.

That's it from me for now. If you've had some interesting or unusual loggings which you'd like to share, write to me at:

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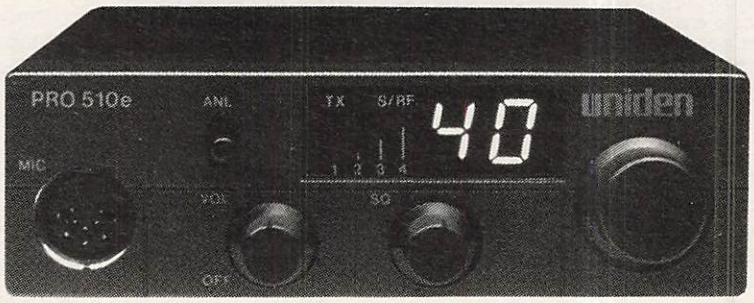
Compact Uniden PRO 510e AM CB



Very high quality and extra reliability make the Uniden PRO 510e a popular choice among avid CB'ers. You'd only have to use the PRO 510e once, to realise its outstanding performance and build quality. A full range of features are packed into this compact 155 x 35 x 167mm unit which means you can mount it under most dashboards with ease. DOTC Approved.

- Switchable noise limiter to reduce ignition noise
- Front panel mic socket for tight installations
- Bright LED channel display
- Signal/power output meter
- Complete with mic and mounting hardware

Cat D-1108

$119

President P300 AM/SSB CB

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- Back-lit analogue Signal/RF output meter
- Large digital channel display with dimmer control
- Mic Gain & RF Gain controls for maximum flexibility
- Noise Blanker/Limiter helps reduce pulse type noise
- Separate Clarifier control for easier SSB tuning
- Uniden's 2 year warranty

Cat D-1470

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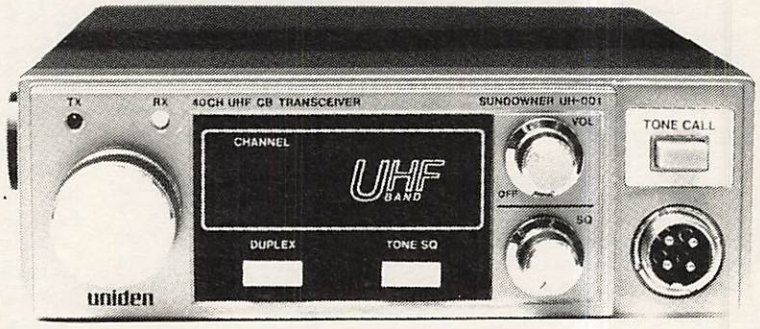
Uniden UH-001 UHF CB



It's easy to see why the Uniden Sundowner UH-001 UHF CB is a proven long time favourite amongst UHF CBers. Not only is it incredibly durable and reliable, but it's also amazingly easy to operate. As well, it comes complete with a quality microphone, mobile mounting hardware and Uniden's renowned 2 year warranty.

- Straightforward mobile operation with easy to use controls and front panel mounted mic socket.
- Easy to read LED channel display with separate Tx/Rx indicator lights.
- Duplex switch for repeater operation.
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Specifications

Frequency:	60-905MHz continuous (up to 460MHz for SSB)
IFs:	47.754MHz, 10.7MHz, 455kHz
Sensitivity:	FM-n (12db SINAD) 0.5uV
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	AM-n (10db S+N/N) 1uV
	SSB (15db S+N/N) 1uV
Tuning steps:	FM-n, AM-w 5/10/12.5/25kHz
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	AM-n, SSB 100Hz/1kHz
Voltage:	DC 12-15V

Cat D-2825

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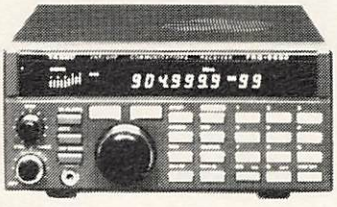

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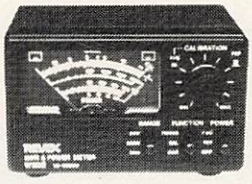

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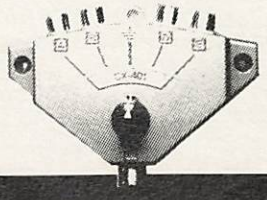

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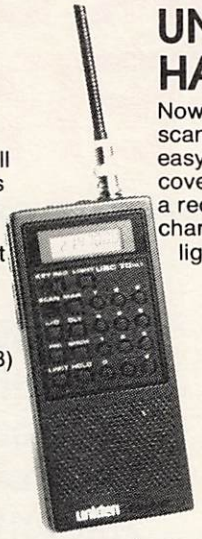

Now here's value! This high quality hand-held scanning receiver from Uniden is a gem. It's very easy to operate, has 20 memories, 8 band coverage, receiver track tuning, and it comes with a rechargeable NiCad battery pack, approved AC charger and durable carry case. What's more, it's lighweight and small enough to fit in the pocket.

Frequency Coverage:	66-88MHz
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	406-512MHz
Sensitivity:	0.4uV 66-88MHz
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Cat D-2740	0.7uV 406-512MHz

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Cat D-4430

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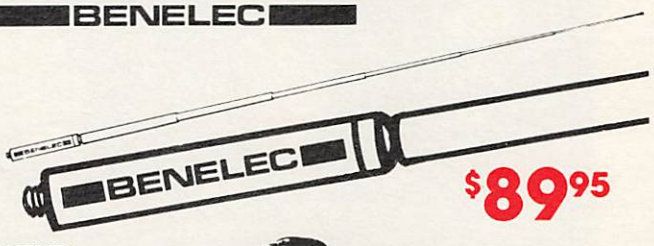

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DICK SMITH ELECTRONICS

TENVOX TX-400 AM IS A GOOD ONE

CHINA DOES IT DIFFERENTLY

Review by Ken Reynolds - Powerband Communications

It's refreshing to review a new rig that contains a few different ideas on how an AM CB radio should look and how it should be manufactured.

Not that there is anything outrageously new or clever about the TENVOX, but rather the way the subject matter has been approached by a new Asian force in the marketplace.

As you can see from the photograph, the TX-400 is a particularly good looking rig, all (popular) matte black in color broken only by the mid-grey control knobs and the white decals naming the control functions. The microphone is physically smaller than the usual CB mike and it uses an electret-type sensing element so the transmitted audio is particularly full range and pleasant to hear. The microphone cable is also thinner than usual - about the same gauge as that of the Philips FM-620. The transmitted power is just a shade over four watts with good modulation level peaking at close to 100 per cent without the usual over modulation peaks that frequently plague CB transceivers. Sounds really good.

"The TENVOX is so, so different from any other AM-only CB transceiver on the market at the moment that you might say the Chinese have a different slant on the subject."

The mounting bracket is solid and allows the tilt angle to be adjusted through the use of four mounting screws - one pair used as a pivot for the other pair to slide through arc-shaped slots in the sides of the bracket.

Construction of the radio is strong using a pressed, light gauge steel chassis with bends in the right places to strengthen the whole assembly and solid, pressed out mounting lugs to mount the internal circuit boards of which there are four - main circuit board, another carrying the front panel controls and two smaller boards for ancillary circuits. The main circuit board layout is neat and a reasonable amount of care has gone into inserting the conventional style components into the holes. Soldering throughout appears to be quite good - including the hand soldered parts.

Most AM-only CB transceivers omit any adjustment for 'netting' the transmitter and receiver accurately on frequency, relying on the reference crystal and its associated components to do the job within the required specification. The TX-400 has an internal control for precise

adjustment of the frequency reference.

If you have ever opened up a CB rig you will find that in almost all cases the rig appears to be built upside-down with the speaker in the bottom and the main circuit board mounted towards the top of the frame - this means all the components are sort of hanging from the roof so to speak. This is usually done to allow space for the speaker's pressed steel frame. The TENVOX breaks the rule and has everything the right way up - just the way you would expect it to be.

Channel selection is achieved by the now popular (el cheapo) press-button operation, one to go 'up' and another to go 'down' - ambiguity of this statement is not intended.

The channel display uses red LEDs and is quite bright by comparison with many similar AM rigs, however, even subdued sunlight tends to overpower the display and makes the numerals difficult to read without cupping a hand around the display window.

Other features include a three position switch activating the channel 9 and 19 function that is hardly applicable to Australia, and a second three position switch that provides PA (public address) operation if needed with a built-in monitor feature that allows the operator to listen to received signals through the PA facility if so desired. PA level is controlled by the AF gain (volume) control.

The TENVOX is probably the only 'scanning' AM only transceiver on the market - at least the only one I've encountered lately. The function is activated and cancelled by the press of a button. A signal detected in the scan mode also cancels the function and the channel is held until the operator reactivates the scan function or the channel selector. Strangely, the scan facility seems to operate on the signal strength of the received signal and not the squelch threshold level.

Our test rig required a received strength of 2.0 microvolts to lock onto the signal reliably and although lesser strength signals could be heard the scan detector ignored them until the 2 microvolt level was received.

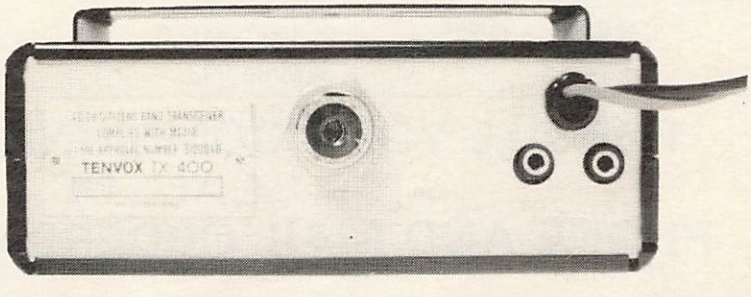
Receiver sensitivity is quite good and the squelch threshold level reliably triggered at 0.5 microvolts while the 'tight' (maximum) positioned required 500 microvolts to grudgingly get the speaker fired up.

There is quite a good level of hysteresis in the squelch and once opening at 500 microvolts the signal level could slip back to about 100 microvolts before the speaker was again muted. The stepped signal strength indicator turned on the first LED for a signal of 0.5 microvolts, two lights for 1 micro, three lights for 3.5 micros, four lights for 40 micros and finally the fifth level needed 7000 microvolts to illuminate the LEDs.

While the scale is a bit compressed at the lower signal strength ranges it is

SUMMARY

The TENVOX TX-400 is a good little performer packed with features that really work. The received audio is very good as is the transmitted modulation. The scan feature works well but may not be of much advantage in the cities where the channels are congested, however, in country areas the feature could save a lot of button pressing if you were looking for contacts. Good value at around $130.



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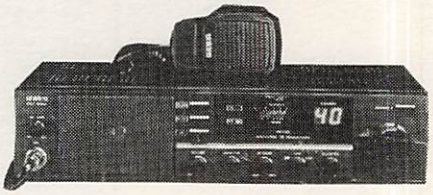

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scan

by Russell Bryant

FREQUENCIES, CODES and EVERYTHING ELSE YOU WANT TO KNOW ABOUT SCANNING

All frequencies are FM and all times are local, unless stated otherwise.

IN THE BEGINNING

THE FINAL CHAPTER.

In previous instalments of IN THE BEGINNING, we have targetted scanning receivers, antennae and scanning technique. Now we examine the thing that ties the whole lot together.

Your radio is installed and the antenna mounted, yet you are not happy with the performance. Something is letting you down. That something is your co-axial cable and to a lesser extent the RF connectors. Always the weakest link in any comms setup, coax will make or break your station.

Let's now take a look at some of the more common cables available, there expected performance, their drawbacks and application to scanning.

CHEAP AND EASY-RG 58

Without doubt, the most common coaxial cable used in scanning is RG 58. At around $1.50 per metre it is cheap, easy to use and available nearly everywhere. RG 58 is able to be purchased in several forms. With RG 58AU, the 'A' denotes a multi-core stranded centre conductor. Whilst the stranded conductor offers greater flexibility and extended life, it exhibits considerably more loss per thirty metres than its solid core cousin. The average loss for 30 metres is around 13dB. It is good for frequencies from 27 MHz to 500 MHz, however performance deteriorates markedly above 500 MHz.

When installing cable in two way systems using 500 MHz or above, as well as for most scanner setups, RG 58U is prefered. The solid centre conductor accounts for the lower loss figures of 9 dB per 30 metres, markedly less than RG 58AU. In both cases the 'U' stand for general utility and the RG is a military designation for coaxial cable. If coax has a 'C' in the suffix number, it simply denotes commercial specifications as apposed to military.

By far, the prefered cable for scanning is RG 213 or RG 8. They are for all intents and purposes the same. The only minor difference is in the external diameter of the product. Considerably more expensive than RG 58, these cables are less lossy than the smaller coaxes. At around 5dB loss per thirty metres they are well suited to scanners where long cable runs or close and continuous contact with metal surfaces, such as tin roofs, is likely.

Without going into the ultra expensive or exotic cables such as Heliax, these are the most common coaxs encounter by enthusiast. They are also of the same nominal impedance, 50 ohms. Impedance is the opposition a cable offers to alternating current (AC), and is normally expressed in Ohms. An Ohm is a unit of electrical resistance. Now the great debate!

75 OHM Vs 50 OHM DEBATE

Can I use 75 ohms coaxial cable on my scanners? The answer is an unqualified Yes. RG 59 exhibits almost the same losses as RG 58 when lengths of 30 metres or more are installed. Otherwise you will notice no difference when employing RG 59 75 Ohms coax in lieu of RG 58. RG 11 is the 75 Ohm eqivalent to RG 213/RG8 and the same rules apply.

WHICH CONNECTORS ?

RF connectors go hand in hand with cable. Just as there is a multitude of cable there are even more connectors from which to choose. The most common RF connector used on scanners in the past was the dreaded Motorola. Because it was the same type used on AM car radios mobile scanner enthusiasts could disconnect their car radio's antenna and use it for scanning. YUK ! Apart from being prone to signal loss they had a habit of coming loose when you least wanted the to. I do not mourn their passing.

When handheld scanners started appearing ten or so years ago BNC sockets started appearing with them. This is purely personal, I consider the BNC to be the best RF socket for scanners. They are good for all frequencies covered by the average scanner, as well they lock onto the radio an will not work loose. They are also quick to disconnect should the need arise.

Occasionally a handheld scanner may be fitted with a TNC connector. TNC are the threaded versions of BNC (bayonet) connectors. Nearly all cellular telephones sold today are fitted with TNC's. Their RF qualities are identical with BNC, however they lack the quick disconnect characteristics.

The PL 259 or M connector is probably the most prolific RF socket found on communications equipment. With exception of the Philips FM 320/620/650 UHF CB's which employ Belling Lee connectors, (no comment on their worth), and the Royce UHF CB which had a BNC, all HF and UHF CB's have PL 259s. They are readily available, cheap and easy to fit, however for frequencies above 500 MHz they are not the best.

N - BEST OVERALL

If one RF connector could be given the title of 'best overall', it would have to be the N connector. N connectors are low loss, high quality but somewhat expensive sockets and plugs. Icom make good use of N connectors on their IC R 7000/7100 communications receivers. Irrespective of the frequency, N connectors are suitable.

It doesn't matter which RF connector you decide on, it is preferable to standardise on a particular type. This enables aerials to be interchanged with a minimum of fuss. It also does away with the need to use RF adapters which increase the chances of signal loss.

If there is topic dealing with the basic operation of a scanner or scanning technique, please drop me a line at the address given, explaining briefly what you would like read. I will endeavour to meet your requests.

MAILBAG

SKIPS UP

Jason, Prospect TAS, recently spent some time on Tasmania's most northerly point, King Island. Always in possession of a scanner he monitored the following Victoria frequencies from across the Strait. Geelong Police 468.050, Telecom Lines 500.150, Lufthansa Company 129.850 AM, UHF CB 476.850. Back home he has devoted a lot of time to lowband and satellite comms. Frequencies with signals originating in the United States that have been heard locally are, 33.90, 33.44, 31.16, 30.80, 31.40, 33.30 and 33.86 MHz. To assist in identifying the possible users of the frequencies, here is a rough American band plan.

The following frequencies are in FM. U.S Government 29.9-30.55, 32.01-32.99, 36.01-36.99, 38.01-38.99, Manufacturers and farming 30.58-31.04, Forestry Services 30.86-31.96, Fire Services 33.44-33.98, Police 37.02-37.40, 39.02-39.98, 42.02-42.94, 44.62-45.05, 45.10-45.60, 46.10-46.55 also shared with fire and local government departments. Power and Water Companies 37.46-37.86. Paging Companies use 35.20-35.54, 35.56-35.60, 35.62-35.68, 43.20-43.24, 43.58-43.60.

(continued over page...)

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scan

by Russell Bryant

CONTINUED FROM PRIOR PAGE.....

Jason's satellite loggings are 258.550 Iceberg Control, 249.00, 263.80, 255.25 and 256.85. On 263.675 AM Jason monitored Air Traffic Control from the US.

VKC LINKS

Ted, Bacchus Marsh VIC, has been monitoring transmission from VKC on frequencies outside the known 468/458 MHz. He wonders what he has stumbled upon. The channels 460.175, 460.450 and 460.950 are just a few of the many discreet links that cover Victoria. Used to link police stations with mountain top sites or control centres with outer stations, the links vary in power output, from as little as one watt to as much as fifty watts. As I have mentioned before, listening on link can provide the edge over the normal channel.

PARKES POLICE

Ian, Parkes NSW, checks in with a list of frequencies used in and around the central western NSW town. Police at Tottenham 82.275/83.775, Police at Parkes Forbes Condobolin and Trundle 83.775, 83.865 and 468.175 X band. Parkes/Forbes Fire Brigade 78.040, Ambulance 76.820, Prime Televsion News 472.850, Telecom techs 158.680, Parkes Shire Council 72.500, aircraft 125.000 AM and finally Leightons Contractors at the BHP mine near Parkes 169.900.

UFO-UNIDENTIFIED FREQUENCY OSCILLATION

Marcus, Warragul VIC has been receiving on 433.350 MHz the sound carrier from ABCTV, and wonders why. Marcus, apart from high level intermod I cannot offer any explanation for your intercept. Any theories would be welcome. Are VKC moving to 900, is another question from Marcus. All Australian police forces are heavily committed to their current 458/468 MHz allocations. There is little chance, in the short term at least, of any major frequency restructures.

VKR CALLING NEWS

From a Queensland reader who wishes to remain annoymous is an interesting update to police callsigns. All media helicopters have been granted permission to operate on police UHF frequencies. VKR has even gone to the extent of allocating individual callsigns. The State Government Squirrel is D500, Westpac Brisbane D505, D506 and Westpac Gold Coast D508, Channel 7 D507, Channel 9 D509, and finally Channel 10 D510.

PICK UP SERVICES

In a recent issue of CBA, Bob Lopaka targetted towing and smash repair firms and the frequencies they use. As with all things by the time the article hit the presses some of the information supplied was dated. The Newcastle District Scanner Group, (PO Box 728 Charlestown 2290), has provided a check list of corrections for their area. Rothapfel Towing 71.21, Sandys Towing 73.730 and Cassiax Towing 75.880 have all ceased operations. Waratah Towage is not a land based towing company, it is a tug service on Newcastle Harbour. An updated list will appear next issue.

US NAVY FLEET SATELLITE COMMUNICATIONS NETWORK

Twelve months ago SCAN alerted scanner enthusiasts to the action on the United States Navy Fleet Satellite Communications System, or FLTSATCOM for short. At the time it was indicated the unusual communications that could be monitored on the twenty one channels around 261 MHz.

Since then, much has been discovered about FLTSATCOM, and in keeping with the policy of up-dating and correcting information SCAN provides the following.

SEVEN SATELLITES TO CHOOSE FROM

Satellites within the FLTSATCOM family cover the three major oceans of the world. FLTSATCOM 1=Pacific Ocean East, FLTSATCOM 2=Indian Ocean,

FLTSATCOM 3=Atlantic Ocean, FLTSATCOM 4=Pacific Ocean West. Located just off the West Australian coast is FLTSATCOM 7, this is a spare bird launched in 1986. When first placed in orbit in 1978, it was expected that the FLTSATCOM series of satellites would have a life expectancy of only five years. Much to the delight of the Navy Warfare Systems Command, who manage the satellites, FLTSATCOM 1 to 4 have exceed their lifespans. The new series of FLTSATCOM satellites have a ten year life.

As can be expected the military place great reliance on satellite communications. The FLSATCOMs are a part of a worldwide network enabling inter-communications between naval establishments, aircraft and vessels.

Further networks are maintained for comms with Strategic Air Command as well as the President of the United State's command network.

Australian enthusiasts monitored, on FLTSATCOM 4, much of the drama associated with the volcanic eruption in the Phillipines and the subsequent evacuation of personel from the giant Clark Air Force Base, around June of last year. The 261 MHz frequencies were alive with military activity almost continuously. When viewed overall, however, it is a small portion of the FLTSATCOM traffic able to be monitored. The following breakdown is a look at each individual satellite as well as its associated data. There are four frequency band plans on which FLTSATCOM operate. Designated ALPHA, BRAVO, CHARLIE and DELTA, (see Table A for frequency details), each of the plans has 23 transponder downlinks made up as follows. CHANNEL 1 Fleet Broadcast, CHANNEL 2 Wideband Channels, (divided into a further 21 sub-channels), CHANNELS 3-11 Navy relay channels and finally CHANNELS 12-23 AFSATCOM, (Air Force Satellite Communications), narrow band channels.

SATELLITE DATA

FLTSATCOM 1, launched in February 1978, is located at 100 degrees west and covers the Pacific East region. Allocated band plan ALPHA, FLTSATCOM 1 is the oldest of satellites in use.

FLTSATCOM 2, launched in May 1979, is located at 75 degrees east to cover the Indian Ocean region. FLTSATCOM 2 utilises band plan CHARLIE.

FLTSATCOM 3, launched in January 1980, covers the Atlantic region and is located at 23 degrees west. FLTSATCOM 3's transponders use band plan BRAVO.

FLTSATCOM 4, launched in October 1980, is located at 172 degrees east and provides communications for the Pacific West region. FLTSATCOM is also allocated band plan BRAVO.

FLTSATCOM 7, launched in December 1986, is located at 105 degrees west and is maintained as a spare should the need arise. FLTSATCOM 7 will use band plan DELTA if and when it comes on line.

Throughout the history of Navy fleet satellites, two have been lost due to mishaps, FLTSATCOM 5 became inoperative on launch in 1981. The nose cone of the host rocket collapsed crushing the primary antenna. In 1987 FLTSATCOM 6 was lost after booster rockets failed to fire. September 1989 saw the launched of FLTSATCOM 8.

(continued over page...)

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scan

by Russell Bryant

CONTINUED FROM PRIOR PAGE.....

As yet no information as to location or frequencies used is available, it can be expected however that one of the four 200 MHz allocation is being employed.

TABLE A

CHANNEL		ALPHA	BRAVO	CHARLIE	DELTA
1	Fleet Broadcast	250.450	250.550	250.650	250.350
2	Wideband Ch	260.350	261.450	262.050	263.550
	(25 kHz spacing)	to	to	to	to
	(21 sub-channels)	260.850	261.950	262.550	264.050
3	Navy Relay	251.950	252.050	252.150	251.850
4		253.650	253.750	253.850	253.550
5		255.350	255.450	255.550	255.250
6		256.950	257.050	257.150	256.850
7		258.450	258.550	258.650	258.350
8		265.350	265.450	265.550	265.250
9		266.850	266.950	267.050	266.750
10		268.250	268.350	268.450	268.150
11		269.750	269.850	269.950	269.650
12	AF SATCOM	243.945	244.045	244.145	243.845
13		243.955	244.055	244.155	243.855
14		243.960	244.060	244.160	243.860
15		243.965	244.065	244.165	243.865
16		243.970	244.070	244.170	243.870
17		243.975	244.075	244.175	243.875
18		243.980	244.080	244.180	243.880
19		243.985	244.085	244.185	243.885
20		243.990	244.090	244.190	243.890
21		243.995	244.095	244.195	243.895
22		244.000	244.100	244.200	243.900
23		244.010	244.110	244.210	243.910

NEW CALLSIGNS

During the aforementioned evacuation of Clarke AFB, many new and unusual callsign were heard. A few of them have been identified as well as some before the volcanic eruption. ARIZONA RANGER-Located Clark AFB, HOT BOX-Possibly high ranking individual located in Thailand, M.A.C OPS-Military Airlift Command, MOJO-C 12 aircraft (military version of the Super King Air), THROTTLE-Unid aircraft, TONIGHT-M.A.C Pacific Airlift Control Centre, WHITE TREE-Emergency comms station located 10 miles from Clark AFB during volcanic activity.

Nothing lasts forever, the United States Navy assumed that the FLTSATCOMs would eventually fail at the end of their five year life span. Approval was given for an interim series of satellites to replace FLTSATCOM. The LEASATs were designed to provide communications from the death of FLTSATCOMs until the birth of MILSTAR satellites. Plagued with problems, plus having fewer channels, together with the unexpected life of the FLTSATCOM means the US military has not relied upon them as much as it would have liked. Until MILSTAR are launched it can be anticipated that the US Navy Fleet Satellite Communications System will be around for a few more years, providing scanner users with a feast of interesting listening. Sure beats the hell out of monitoring the police.

NSW POLICE REPEAT THEMSELVES

Over the next few years, the NSW Police are up-grading the mid band VHF system. The backbone of communications throughout country NSW, the 83 MHz simplex frequencies are being removed in favour of repeaters.

The old allocations (seventeen channels between 83.760 and 84.000 MHz) will become the repeater input frequencies, whilst the repeater outputs are 1.5 MHz below the existing channel. Just because a frequency is being used in an area now, doesn't mean it will remain so under the new system. DoTaC has decided not the remove current users so the police can have exclusive use. If interference occurs the police will be the ones on the move. Channel changes are likely in most areas. Many of the cross band UHF frequencies in the 468 MHz band will also disappear, with discreet links in the 460/450 Mhz allocations being employed. Previously where police stations transmitted on UHF to a remote base, with the VHF repeaters, the station simply becomes a mobile in the system, transmitting on VHF. Where an area is covered by several transmitter sites, transmissions will be via all bases at the same time, thusly giving near total area coverage.

WA 'OOO' TALK TO EACH OTHER

Something that should have occured years ago has finally come into service. In July 1990, Perth's emergency services announced a joint emergency services channel. Given that the police, fire and ambulance services all maintain and use separate radio networks, the new common Triple 0 channels represent a major break through in inter-departmental relations.

In Perth the new allocations will allow senior emergency service officers to communicate directly with each other without having to relay through their respective control rooms. In areas outside Perth the channels could be used by police, fire and ambulance personal as an effective intercom, to assist in locating lost persons or for liaison at accident scenes

WA FREQUENCY GUIDE

A new frequency guide has just been released covering most WA services in the range 200 kHz to 960 MHz. Professionally printed and bound, the book contains, apart from frequencies, users, callsigns and tranmission modes. Interested readers should contact Garry Heuer on Perth 3375691. The guide retails for $39.95.

ATTENTION MVT 7000/8000 OWNERS

A locally produced English handbook is now available for the Yupiteru MVT 7000 and 8000 scanners. Compiled by Steve Palmer from Brisbane the guide is available for $5-00, to cover postage only, from Steve Palmer, telephone 07 8483421.

CORRECTIONS

In the Nov/Dec issue I mentioned that Allan Muddle, PO Box 50 Dungog NSW 2420 was producing a frequency file to aid in the house keeping of large capacity scanners such as the PRO 2005/5/6. I neglected to state that the AR 1000 / HP 100 are also included.

Before signing off, I thought I would mention an interesting story about a certain unnamed CBA scribe that decide to trick his girlfriend as she detrained at his railway station. He placed a several hundred dollar two way radio at the foot of the stairs exiting the station. As his girlfriend would leave the train in the vicinity and generally she was the only one on board there would be no problem. What he didn't count on was the fact that his beloved travelled in a different carriage and instead of talking to his girlfriend, he was whispering sweet nothings to the train guard, who had retreived the said handheld. After a small chase he finally caught up to the train and convinced the guard that the radio was his. Damn Funny story.

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YAGI ANTENNAS

What are they and how do they work?

Elsewhere in this issue of CB Action we have a do-it-yourself article on building your own extendable, and self-supporting, CB mast.

Chances are that having built it you'll hang a multi-element directional antenna on top - and in case you don't know what a multi-element directional antenna actually is - it's a Yagi.

The following article will bring you up to speed on what a Yagi is and what it does, and why you shouldn't muck about with one unless you know exactly what you're doing.

Readers will remember from history classes of the alchemists all through recorded history and their desperate search for a catalyst which would mystically transform the common heavy element lead, into lusty chunks of gold.

The Spanish conquistadors along with many other soldiers of fortune roamed the globe in a relentless search for power and incalculable wealth. The search continues even today - not always with violence or even success for that matter - and in the 20th century we still seek to cheat mother earth of her depleting stocks of mineral wealth.

Quite a departure from the normal introduction to a 'do-it-yourself' antenna discussion, however a valuable analogy on which to reflect our basic human nature and our quest through life in seeking an elusive pot of gold at the end of a rainbow. To state it less tactfully, looking for that legendary 'something for nothing'.

Very few of us ever approach that realisation and have to be content with an occasional 'windfall' of some lesser order. However, when we take a closer look at some forms of antennas we do appear to get a very handsome reward for very little sacrifice in the form of trade off.

MOST ANTENNAS ARE A BIT OF A MYSTERY

Operators continually debate on and discuss antenna gain which is obviously a highly desirable feature in the life of any serious CBer, or for that matter, most users of the radio spectrum. Perhaps not literally a pot of gold, but a very handy advantage to possess when it's needed.

Any type of antenna system is pretty much a mystery to the majority of CBers and, believe it or not, even the experts are unable to fully understand all facets of this medium we knowingly term radio propagation. If simple antennas are a problem it is only simple deduction to realise that compound radiators must be a maze of almost incomprehensible complexity. They are just that! Not a very comforting thought, is it?

However, amid all this confusion, we find the saving grace of scientific investigation has come to the party and recorded 'zillions' of minor observations which, when fitted together in logical order make the overall picture much clearer. We still don't know the full details but with modern test equipment and a store of knowledge and experience, we stand a pretty good chance of doing right.

Dismissing all other types of gain antennas, let's get down to a brief synopsis of the multi-element directive array often called a Yagi or beam.

Firstly, credit where it is due, and it must go to a Japanese researcher by the name of S. Uda who first published his work in Japanese in March 1926. Because his findings were written in Japanese - not a widely known language at that time - there was little publicity given to the research until 1928 when Dr H. Yagi, a colleague of Mr Uda, produced a paper combining both researchers' works in English.

If, after you've read our regular DX International column, you've sat down and wondered how the hell others can hear these exotic stations while all you get is Fred down the road, maybe it's time you thought about a Yagi antenna

This document was widely read as a consequence of its English translation and since it was written by Dr Yagi, the antenna quickly became known as a Yagi array. It was later to be termed a Yagi-Uda array in recognition of the lesser known discoverer of the principle.

ORIGINAL YAGI-UDA DESIGNS REMAIN LITTLE CHANGED

The original designs developed by Yagi and Uda in their experiments remain very little changed to this day. The basic array, now quite familiar to most CBers, consists a number of half wavelength metal elements (or dipoles) aligned in parallel along a single axis and all in the same plane. Only one dipole is directly driven by the transmitter and all other parasitic elements, as their name suggest, are excited into activity by the RF field radiating from the fed dipole.

It was found that little could be gained by adding more than one reflecting element to such an array, however, the addition of several directing elements showed desirable results with an increase in gain yield as each was optimised.

Reflectors are usually the longest element in any array followed by the driven element and finally the directors which are generally progressively shorter toward the far end. The centre supporting metal boom - seen on most antennas of this sort - theoretically plays no active part in the structure other than to hold the elements rigidly in their predetermined locations along its length.

In the next few paragraphs I intend to dispell a few of the commonly held misconceptions relating to Yagi-Uda arrays. Over the years, so widely distorted and misconstrued - even in some well known publications - that few people seem to realise antennas of this type have quite strict limitations relating to their potential maximum gains and required accuracy in construction.

* **The practical number** of elements for a single array is limited to between

10 and about 16 as a maximum. This is because each parasitic element lies further away from the field which excites it and as a result, those located farthest from the source are subject to only minimal excitation - each successive one participating less in the overall reaction.

* **The gain of a Yagi-Uda** system should not be judged on the number of elements so much as the actual length of the array. If an array requires a dozen elements to achieve the same results as another containing half that many, you can be pretty sure that something went wrong in the design - to put it politely.

* **The most gain** to be expected from a single practical array is usually about 15dBd from a sound design and possibly up to a debatable 17dBd. Many claims are wildly exaggerated and bear little resemblance to the facts.

* **The claimed gain** of any such antenna is mostly a point of contention, however most reputable manufacturers strive to supply accurate figures about their products.

Unfortunately, accurate gain measurements of any system are extremely difficult to determine and an array measured on one test range might vary in performance by several dB when tested on another range.

* **The use of metal** or non-reactive boom material is a necessity when constructing Yagi-Uda arrays. Research shows that wooden booms - suggested by some builders - are just 'not on' as results obtained are inconsistent and therefore unsatisfactory.

* **Dimensions of Yagi-Uda arrays** must be held to fine tolerances - especially at VHF and UHF - if optimum performance is to be achieved. Close enough is not good enough. Advocates of the coat-hanger and broomstick syndrome are doomed to inferior results without considerable tuning.

* **NEVER change** any specification of a plan when building an array of any type - this includes element and boom diameters.

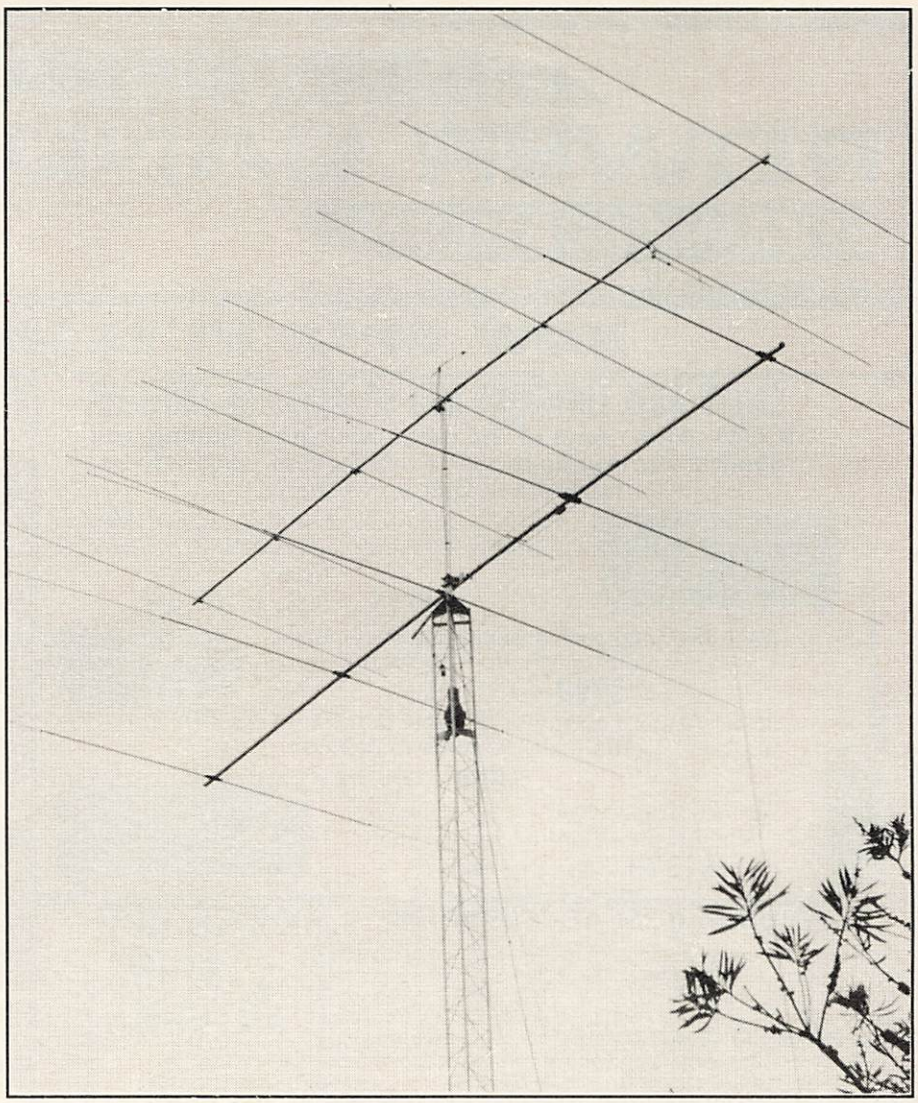
* **Yagi-Uda arrays** are essentially a compromise between such factors as gain, input impedance, front-to-back ratio, magnitude of minor lobes and band width.

Don't expect to optimise them all simultaneously in one antenna.

Optimisation of a system is a lengthy, time consuming business and although a sound knowledge of operating theory and established practices will start an engineer on a solid footing, the final results are usually the result of many hours hard work and experimentation. The usual story, more perspiration than inspiration.

It is virtually impossible at this stage to take a group of theoretical computations and magically produce the perfectly optimised parasitic array. Those who suggest that element dimension, spacing between and boom diameters are not crucial have probably never built an optimised antenna. Advocates of this 'rough as guts' theory often assume that because it looks OK and is about the right dimensions that it must also offer the degree of optimisation that misdirected information dictates.

Don't be fooled, perfecting a Yagi-Uda array is a serious business not to be entered into lightly. If you must take this approach it is far better to let someone else do the work and buy one.



It's not difficult to get carried away in the search for antenna gain. Pictured above is a 7 element 11m Yagi sitting above a five element 15m amateur Yagi and, yes, the owner is a licenced Novice operator.

In our next issue we will bring you a review on one of the top CB Yagi antennas - the Hy-Gain Long John, model number 105BAS. This five element antenna has not been available in Australia for a long time, but, from past experience we know it to be one of the best on the world market. With a claimed gain of 10dBi and front/back ratio of 20dB it will turn your 12w PEP into a huge 100w ERP (effective radiated power), who needs a linear amp, think about it ! We thought it may be available in time for this issue, however, the Australian supplier (Firemoon Pty Ltd) received a shipment just before this issue went to press and there was no time to carry out the review...it will be worth waiting for though !

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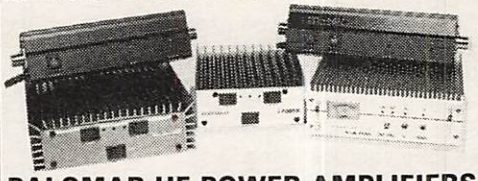

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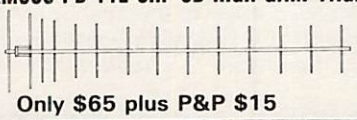

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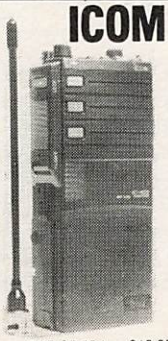

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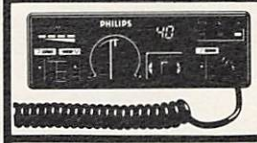

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bandspread

FROM DC TO DAYLIGHT *with Greg Towells*

Welcome again to Bandspread, the column that covers topics from literally DC to Daylight. Bandspread is the column for readers with interests in anything from amateur radio, CB, scanners, shortwavers and computer buffs, all covered by specialist columns elsewhere in this mag, but in a different way here! Stay tuned radio tinkers, there is more mods and bits coming up. Be warned, however before attempting any of the modifications described in this column, that although these mods have been carried out and do work, that we accept no responsibility for any damage caused by any reader, and as the editor pointed out last issue, WILL DEFINITELY VOID YOUR WARRANTY IF CARRIED OUT BY YOURSELF. Now read on and enjoy!! The postal address for any information for this column is P O Box 577, St Marys, NSW, 2760.

BROADCAST BAND MODIFICATION FOR ICOM IC-735

The Icom IC-735 is yet another amateur transceiver with general coverage receive that has been gifted with a very noticeable reduction in sensitivity below 1.6 MHz, very much like the Kenwood TS-140/680 that I mentioned in last issue. One further problem noted with the IC-735 is that the pre-amp does not function below 1.6 MHz, which is an undesirable feature, particularly for broadcast and long wave enthusiasts. So here is a mod to enable the pre-amp to be used below 1.6 MHz.

Before starting on this one, a warning.

DO NOT ATTEMPT THIS MOD UNLESS YOU ARE COMPETENT WITH A SOLDERING IRON AND FULLY UNDERSTAND WHAT YOU ARE DOING!!

There is very little room in the area of the radio where the mod is to happen, and a short here could end up very costly.

Be warned!!

Right, all you will need is an IC-735, a 3.3k ohm, 1/4 watt resistor, a small soldering iron and a steady hand. Disconnect all power to the radio, and remove the underside cover of the radio. At this stage, you will be looking at the main board.

Locate resistor R373 and transistor Q75 (2SA 1048), which are on the left-hand side of the board. Cut the leg of the resistor R373 at the transistor Q75 end and lift the cut resistor clear of the board.

Find your 3.3k ohm resistor and solder one leg onto the BASE lead of transistor Q75 and solder the other leg onto the adjacent chassis case, which is ground.

That is the end of the mod. Check your work for any shorts or solder bridges and reassemble the radio.

Power up, watching for any stray wisps of smoke, and check that the pre-amp switches on and off below 1.6Mhz. Is that an improvement in reception or what??

The signals in this area are increased dramatically with the pre-amp on, and most importantly, the signal to noise ratio can be improved greatly with the use of the noise blanker and passband controls.

One final word of warning.

When tuning in the broadcast band, ensure that the pre-amp is off when receiving anywhere near local stations, as damage could result to your radio.

Bandspread Part 2..... YUPITERU SCANNERS

I had a chance to appraise (read play with) two new (at the time) scanners, both of the brand name Yupiteru, namely the MVT-8000 and the MVT 7000. The MVT-7000 was reviewed in the July/August edition of CBA, and I have to agree with all of Russell's superlative comments on the radio's performance and particularly the ease of programming. I am one of these operators that like to get straight into the radio and then check out the instructions some time later, or if the thing refuses to play, then somewhat sooner. This radio falls into the first category, probably because I lacked the operating manual for a while.

Memory channel capacity is 200 and this is suitable for most users on the go. I have become used to the 1000 channels of my usual and test scanner, however, once away from home, I usually only use the first one or two banks anyway.

ADJUST THE LCD CONTRAST

One of the features that caught my attention was to do with the LCD display. Along with the usual backlight is a variable control to adjust the 'contrast' of the LCD. This effectively 'brightens or dims' the display to make it more readable in high lighting conditions. I have not seen this facility on any other scanner, and from my experience, the control came in for a lot of use.

The other scanner was the MVT-8000 and covers the same range as the MVT-7000, that is 8 to 1300 MHz continuous. In fact, the controls and features (except for the display contrast control) are identical in both radios, so if you master one radio, then you can drive the other. The MVT-8000 features 200 channels, with direct keyboard entry, VFO control and up/down buttons to enter the desired frequency or channel. Modes available are AM, FM Narrow and FM Wide.

AF SCAN FACILITY IS AVAILABLE

An AF scan facility is also available, when enacted this prevents the scanner stopping on unmodulated signals. The AF scan works well, unfortunately many frequencies these days carry a variety of data signals and for these, an AF scan is not of any use. However, any birdies or unmodulated carriers are swept past when AF scan is used.

TINY, SLIM and DESIRABLE

My first impression of the MVT-8000 is, what a tiny, slim, desirable looking radio. The keyboard is designed with plenty of room around the keys and is easy to follow. The audio from the inbuilt speaker is first class, almost unbelievable from such a small speaker. Sensitivity is top notch, especially considering where I first fired it up from, basically a concrete room with steel bars all around (no, not a prison, but close!!) with computers going on the next floor, and using the little supplied antenna! However, the location was close to a nest of pagers, yet it troubled the Yupiterus (both) very little.

I was very impressed with both of these radios, and I am not easy to please, especially with so much in the way of pagers and other RF rats nests proliferating around our cities of late, and the inability of a lot of radios being imported lately to handle such rubbish. I would recommend both of these radios to the scanner enthusiast, and they are always in stock at Andrews Communications.

SIMPLEX REPEATER

How many of you out there have used repeaters? Plenty have, I know.

Right, but how many have used a SIMPLEX repeater? That narrows it down a bit. Sydney amateur radio operators have been treated to a simplex repeater since mid-October. Operating on 146.425 MHz, a digital 'store and forward' repeater has been installed in time for the JOTA (Jamboree Of The Air) weekend in October. Callsign is VK2SSS, and the repeater was used extensively by stations participating in the event. The unit has a great deal of novelty value, since users will be able to hear themselves 'coming back' from the repeater (although, could you imagine the device being installed on 27 MHz, or on a prominent site within range of Sydney UHF CB's power stations??).

SO HOW DOES IT WORK ?

How does a SIMPLEX repeater work anyhow?? Many readers are probably asking how a repeater can possibly operate simplex!! Well, this is how. The unit samples your audio at 64 Kb/sec (the same principle as a CD player), and stores it in a 2 Mb RAM chip. The audio is then replayed back on the same frequency with a tone inserted at the beginning and the end of the transmissions.

The repeater is primarily an audio device, so you cannot 'ker-chunk' or drop carriers on it, unless your carrier has a bad alternator whine to it! It responds to AUDIO input only, so the only way it will talk to you is if you talk to it. It needs a minimum of two seconds of audio before responding. The key requirement for successful operation is PATIENCE.

Many operators carried on with their over, did not wait long enough for the repeater to re-send their over, and started talking again. Result, the repeater came back over the top. Wait until the repeater has finished its transmission before you talk.

There is a 30 second 'talk-time' after which the repeater will cease recording your transmission and come back over the top of you with the first 30 seconds of your over!! Naturally the time taken for an over is twice as long using the simplex repeater than a normal repeater, however this device does what no other repeater can, it lets you hear yourself as others do. What a shame normal repeaters do not do the same. Some of the wafflers, dribblers and all-round pests might get a shock, and there is no excuse for poor audio and alternator whine!!

REPEATER IS STAND ALONE

The repeater is a complete stand alone unit, and requires no host PC. It is running an output of 45 watts into a vertical at around six metres high, from the southern suburbs of Sydney. Coverage has been noted from Gosford to Wollongong, and is accessible by most stations in the greater Sydney area. It has a time-out timer and CW ID built in.....and since it operates in the amateur bands, can only be used by licensed amateur operators!!

A recent addition to the unit has been the installation of sub-tone of 123 Hz, which means stations can use the frequency and not be bothered by the repeater. Stations can only access the repeater by turning on their sub-tone facility, available in most modern two-metre radios.

The final home for the device will be 70cm, as Sydney is well served by two-metre repeaters. Comments from listeners or users should be addressed to Glenn, VK2TZ on VK2XSB packet radio BBS, on 144.800 MHz.

Thanks to the NSW Division of WIA and Glenn, VK2TZ for this information. I wonder whether simplex repeaters could possibly catch on with the UHF CB service?

Don't forget, if you have something worth knowing I can be contacted through:

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Good, bad or ugly?

Low-power walkie talkies

They're what you once longed to find under the Christmas tree. And sometimes they are the perfect solution for short-range point-to-point communications. Walkie-talkies are, as the song goes, "simply irresistible".

David Flynn reports...

They're small. They're lightweight.

Unfortunately, they also come in for a lot of criticism, if they're not just disregarded out of hand. Note that I'm not talking about the more costly multi-channel 1.5 watt models. Rather, I'm on about those $30-a-pair units which you are tempted to dismiss as toys. Well, yes, some of them are toys. And what's wrong with that? Hands up any reader who didn't at some stage pester the parents about wanting a pair for birthday, Christmas, or just as a special treat. And who can say that this early exposure to RF didn't spark that interest in radio and electronics which so many of us have turned into a career in some way or another? But, if you are going to return the favor to your kids, be aware that not just any walkie-talkie should do. Some have so little range you'd be better shouting, while others cop and in turn create interference without end. And there are newer breeds of low-power walkie-talkies on the market, VHF models at 49 MHz and 55 MHz. Some of these are far from toys and can be called upon in a variety of day-to-day uses.

So if you're going shopping for the kids' sakes, or for something with a bit more flexibility in mind, just how much walkie-talkie, and how good a unit, can you get for your dollar?

DoTaC Rules and Regs

Most low-power, short-range walkie-talkies are covered by DoTaC specification 301, which also applies to remote control toys. This sets down general transmit and receive specs which limit the radio to very low power output, and an antenna of less than a metre which remains permanently fixed to the walkie-talkie. To minimise interference the unit must also come in under limits for spurious emission and radiation.

DOC301 sets down three channels - A (27.145 MHz), B (27.095 MHz) and C (40.68 MHz). Although no modes are specified those wts in the 27 MHz band use AM while the 40 MHz models use FM. Channels A and B are wedged between existing CB channels, in those parts of the band where channels are separated by 20 kHz gaps.

In the days of sliders and lift/drop switches these spots were known as the "half" channels. 27.095 was channel 7 (and later known as 7A) in the original Australian 18-channel CB service of 1977, while 27.145 has long been a favorite among the "walkie-talkie boys".

Looking at the 40-channel bandplan you can quickly see that walkie-talkie channel A lies directly beneath CB channel 16, which is the sideband calling frequency; while B is 10 kHz above the AM call channel. And it's pretty obvious that if you want adjacent channel interference, then being next to the two most popular CB channels is just the place to be!

27 MHz - You Can Do Better

This is the first reason why the 27 MHz wts are nothing more than toys, and pretty poor ones at that.

Unless you are way out in the middle of the country you'll get absolutely clobbered by any nearby CB activity, and given the walkie-talkies broad receiver you'll find yourself splattered at least 10 channels aside. The next problem is that inherent in the walkie-talkie being an AM set. AM is more susceptible to electrical and atmospheric noise than any other mode, and combined with 27 MHz being "nature's dumping ground" you end up with pretty dismal range...

In my own experience, if operating in suburbia you'd be lucky to get from one side of the street to the other.

In an open field, with line of sight, you might get to 20 metres before it becomes easier to shout between yourselves.

If across the street, around the yard or between bedrooms is all your kids will want, then the cheap 27 MHz wts will do them fine. Even so, their construction is never brilliant and they are unlikely to stand the sort of knockabout treatment they're likely to receive.

49 MHz is good

If you're going to spend anything on low-power walkie-talkies then the minimum should be something on 40.68 MHz (channel C). While 27 MHz handhelds have been around for decades, it is only in recent years that the lower end of the VHF spectrum has become host to short-range handhelds. For this reason the "C

sets" tend to be of a superior design - more modern, more compact, with a slightly cleaner signal and better receiver. While we're not talking about surface-mount components or anything so high-tech, it's still a noticeable difference over the 27 MHz devices.

The biggest advantage of the VHF sets is that they are well away from the interference problems of their 27 MHz cousins. This alone makes for an increase in effective range, although because you're still using AM a fair degree of noise remains a problem. I tried a pair of wts from Tandy's "Space Patrol" series and figured that they were the most likely to please the kidlets while remaining within budget.

The sets are very small and certainly pocket-sized, and you could count on a clean signal for 20-30 metres in average conditions. Nothing brilliant, but a damn sight better than you'd get on 27 MHz.

55 MHz - Deluxe Gear!

The best performance of all wts comes from the 55 MHz FM units. This is the "deluxe" category of short-range wts, although they remain quite affordable.

55 MHz is a nice frequency for low-power handhelds. It has little trouble with electrical noise, is less likely to cause TVI and yet still provides something resembling useful range. And FM is the perfect mode - noise-free, good quality audio and maintains a clean signal right up to the edge of the coverage area, instead of fading with each step as does AM.

Two of the most interesting entries into the 55FM market are Tandy's TRC-500 and TRC-501. They are essentially the same radio, built around one of those nifty radio-on-a-chip integrated circuits that makes these wts better and smaller than anything else on the market.

The transmitter is truly pocket-sized, about the same dimensions as a pack of cigarettes and just as easy to get hooked on (although the radio is slightly healthier). Muting is automatic and the transmission range of either model is quoted at 400 metres, or a quarter-mile in the old currency. Both models are crystal-locked onto 55.050 MHz, although the handbook's circuit diagram includes a table listing substitute crystals for the American and Canadian 49 MHz channels. The TRC-501 is the more basic of the two. It's dead simple to operate - extend the inbuilt telescopic whip, turn up the on/off/volume control and hit the PTT key. Creature comforts include a "low battery" LED, tone key and belt clip. The list price is $49.95 each, and for that you get a very good package which takes you well out of the range of "kiddie talkies".

Oh, keeping the kidlets amused is one application - but I've also seen 501s used around the caravan park or campsite, and they seem to be very popular with antenna installers, on building sites and even with some in-store security personnel. Their range is quoted as being around 400 metres (a quarter mile in the old currency) in line of sight, and they pretty much met this in testing. Naturally, if you start to wander through the undergrowth and around uneven terrain the range drops off. One step up in convenience is the TRC-500, which takes the same 55 MHz FM innards and adds a voice-operated (VOX) hands-free headset with boom mike, although you can also opt to use traditional push-to-talk operation. The lightweight black box which clips to your belt has switches to adjust headphone volume, VOX and mike sensitivity and to select between VOX and PTT. The antenna is a simple 40 cm wire whip mounted on the headset itself. The TRC-500 sells in pairs for $99.95.

What To Buy?

In summary, if you're looking for a low-power walkie-talkie then you'd be best to rule out the 27 MHz models. For the traditional low-cost kiddie-talkie, go for 49 MHz. But for something which will really do the job, try to stretch your budget and grab a pair of Tandy's mighty-mite TRC-501s - you won't regret it, and neither will your kids!

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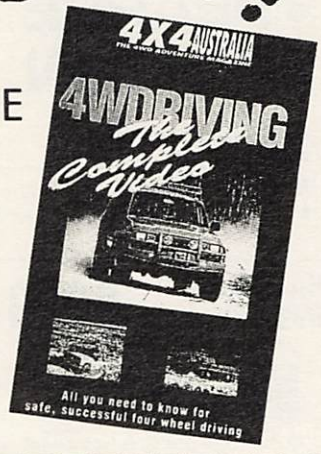

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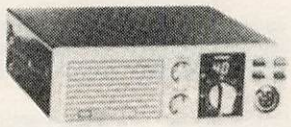

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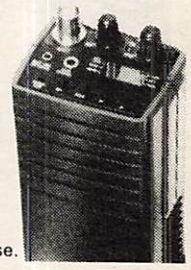

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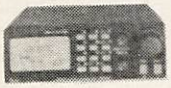

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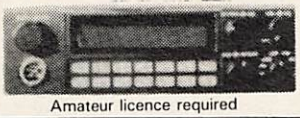

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DAVID FLYNN has the latest on

Europe's radio data system

Picture this. You're heading down the highway with your favorite radio station tuned in and your favorite music blaring out. But as you drive out of range the signal fades, and you've got to hunt down another station to drown out the *thunkatathunkatathunk* of rubber on road. Relax - let the car radio do it for you, no matter what your favorite music is - rock, easy listening, classical. It needn't even be music - it could be sport or talkback. The radio will seek out a suitable program at the press of a button, and display the station call sign on the alphanumeric LCD display. That's right, not just the frequency but the call sign too.

Your car radio will also wind the sound down when those adverts come on, and wind it right back up as soon as the next song starts. It can even automatically tune in to a regular program at a pre-set time, be it The Goons at 12 noon Saturday on ABC Radio National, Nick Erby's Country Music Jamboree on Sunday mornings on Brisbane 4BC, or the nightly 7pm Jazz Hour on 2MBS-FM Sydney. All the while, you're concentrating on the driving. And you'll make good time unless the weather turns sour or there's a hold-up ahead. But the radio will warn you in advance of this, too. And while you're out and about it acts as a pager, receiving and displaying messages on the LCD readout.

All these feats are part of a European innovation known as RDS - the Radio Data System. It's a unique way of using hidden codes within the regular radio signal, codes which are undetectable to you but are heard and obeyed by your car radio, telling it what you want it to do and when to do it.

Sounds great. But with millions of people starving and our planet being choked to death, haven't engineers got better things to do than perfect a way of telling me which station is playing the latest Kylie Minogue hit?

IT ALWAYS COMES DOWN TO THE DOLLAR

IRDS means a great deal to broadcasters, who are keen to make radio more listener-friendly. Their market is enormous - the European Broadcasting Union, which promoted the development of RDS and has now adopted it as a standard, has over 30 member nations with a combined total of some 250 million radios in use. A very large market indeed, and one which broadcasters want very much to encourage.

RDS is seen as a solution to many of the obstacles which broadcasters believe are reducing their audience. To begin with, the industry claims far too many of the 11 million radios sold each year in the UK (with a total installed base of almost 90 million) "show serious deficiencies in performance and come nowhere near to meeting specifications on which transmitter planning is based", according to one report. The radios lack sensitivity, are difficult to tune accurately and suffer from overloading due to strong signals.

20 LEGAL STATIONS...AND EVEN MORE PIRATES

There is also the sheer number of stations on the air. In greater London there are 20 legal FM stations and far more pirates, while new licensing arrangements could see this number increase threefold by the year's end. On the wider scale, Europe's 4000 FM stations are expected to swell in number to 20,000 in coming years, under similar liberalisations of the spectrum.

In both instances there are several related problems. With many stations playing similar music formats (and here we pause to note the abundance of Australian stations with identikit hits and memories/easy listening/solid gold/classic rock' programming), how do you tell to which you are tuned? Add to this the all-encompassing web of the English broadcasting system, which uses a network of relay stations to provide near-national coverage with additional low-powered "fill-in" transmitters. How does the listener identify the best signal or find the desired station in each area?

IS THIS A SMART RADIO OR A DUMB IDEA ?

POOR LISTENER...POOR BROADCASTER

Having sunk large amounts of money into music and audience research to get the right sound - the winning sound - and even more into advertising that sound, broadcasters are concerned that these difficulties create barriers to their audience. Their answer was RDS.

The technique of encoding data onto a television or radio broadcast is called datacasting, and is surprisingly common. The Seven Network's TV teletext service Austext is a well-known example. However, datacast signals are not always designed for public consumption - both the ABC and SBS Television use the same arrangement for remote control of their TV transmitters. RDS uses exactly the same principle.

A BIT ON BITS

Lesson time. Electronic data is digital, information broken down into tiny units each known as a "bit" - say, a signal turned on and off, a voltage applied or not applied. This is binary, 1 or 0, and it drives your phase-locked loop (PLL) and through it your entire CB radio or scanner. But you can't do much with just one bit, and the more you use, the more possible combinations of noughts and ones you can have, combinations making up a whole unit of information which is recognisable and useful. Consider a digital channel display - each figure is made up of seven individual segments (go on, count 'em). Applying voltage to both of the vertical right-side segments makes a "1". So these two "bits", when both set to "on", indicate you are on channel 1. They also complement a similar digital signal sent from the channel selector switch to the PLL, which is where the real work gets underway.

A further example. Speech is data, too, information which can be understood and used. Consider each sound to be a "bit".

You can make the sounds for the word "go", but that's pretty useless on its own . . . go? Go where? So you add a bit more information to your transmission - go to the shop. That's better, but what do you want at the shop? Try again - go to the shop and buy some milk. The more you say, and so the more "bits" you send, the more information you give and the more you can get done. Teletext and RDS send LOTS of bits.

BBC Radio pioneered the datacast field in the early 1960s. It could activate and deactivate unattended FM relay transmitters by sending a one-bit signal, specifically a 23 kHz tone switched on and off - simple, eh? The applications for datacasting are many and varied. The 200 kHz LF transmissions of BBC Radio 4, which blanket the entire British Isles, are now used by the Electricity Supply Industry for remote control of electronic time switches. These devices, known as radio teleswitches, are cost-effective replacements for the older mechanical switches. Besides the obvious advantages of reliability, they can be automatically set for summer-time and reset following mains failures.

HOW IT WORKS

RDS is simply the latest development in this technology, but certainly will become the most widespread. The data is encoded 57 kHz above the main FM signal as a double sideband suppressed subcarrier. This happens to be thrice the 19 kHz FM stereo pilot tone, to which the RDS subcarrier can be locked into as a third harmonic (clever devils, these engineers). Data is shuffled onto the FM broadcast at a rate of over a thousand bits every second, which in tech-speak is bloody fast. These bits make up the codes which tell your radio what to do.

It is very easy to let the possibilities of RDS carry you far away from the very reason why it was invented - to help the user find his or her way around a spectrum filled with radio stations.

The basic requirement was to give a receiver the ability to display the name of the station to which it is tuned. The radio knows this because the signal it is receiving carries its callsign in RDS code. An LCD tuning readout on the radio will indicate ABC 1, MMM and so on. In places where stations have more than one transmitter, perhaps to cover a wide area, the RDS signal can also tell your radio where on the dial it will find these other transmitters. So when the signal gets weak it'll retune to another transmitter, but of the same programme, automatically.

WHAT ELSE CAN IT DO ?

What else can your smart radio do? It can set the time and date on the display, automatically advancing one hour in summer time and likewise resetting at summer's end. It can tell the radio whether a program is in mono, stereo or biaural (dual language) and also enables the appropriate noise reduction circuitry. It will switch between two user-set volume levels, as illustrated in our introduction. The alpha-numeric display can display up to 64 characters of text for news bulletins, sports results, song titles, talkback phone numbers and so on.

A PAGER FOR THE PEOPLE

In England, the wide coverage of the BBC national broadcasting service is also the ideal medium for an everyman's pager, transmitting messages to your car radio via a unique RDS paging code. Another future development will be the use of a data channel to download information onto a personal computer or printer. And they've not forgotten the origins of radio datacasting, with the provision to operate and test remote transmitters.

As wonderful as it all seems, there was little point in commencing RDS broadcasting without suitable receivers in the marketplace, and of course no-one was going to build an RDS radio without a service being on air. This impasse is understandable, because although RDS is a free service to the public it costs bags of money at both ends of the industry.

For the broadcaster, RDS generators and encoders are expensive, and were also non-existent until someone was prepared to make radios to receive the service in the first instance. And the research and construction of an RDS radio wasn't high on the list of any manufacturer if the public wouldn't buy one because their local station didn't have RDS. Once the BBC started planning for the implementation of RDS throughout the country things began to change, and all national and local transmitters were set-up with a basic compliment of RDS features. This was completed by the beginning of 1988, and achieved coverage of 80 per cent of the population. The second step saw the extension of RDS to regional stations in Scotland, Wales and Northern Ireland, and was finalised early last year. Broadcasters in Germany, France and Sweden have also commenced RDS operations, with another eight countries to introduce the service this year. Having established RDS in its most spartan form services are now being up-graded, with experimental stages for traffic announcements, radio text and other features now carried on some dozen BBC stations.

COMING UP SOON

RDS receivers have started to appear on more and more shelves since the BBC kicked things off. An RDS radio is now standard equipment in all new Volvos, and Grundig has launched a hi-fi RDS receiver for home use. The essential raw material for RDS is a decoding chip, which is now in production at Blaupunkt's West German plant and sells in quantity for less than $3. The BBC itself will be encouraging the spread of RDS through its plans for a BBC-badged RDS portable which everyone can afford. Dubbed the "Volksradio" by one industry wit, the unit is due for release in the very near future. Coming next - a car radio that talks back to you? Don't laugh - I was chatting to an engineer the other day . . . !

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David Flynn looks at some frequency guides and asks...

Are They Really Worth The Money?

There was once a time when a special breed of men gathered wisdoms and truths over the years. They recorded their learnings on scrolls and parchments, creating books of knowledge which at once revealed many a mystery and yet hinted of even more that was yet to be discovered.

No, we're not talking about the years BC and the Dead Sea Scrolls, but of the way things used to be for scanning enthusiasts. Masters such as Russell Bryant and Bob Bell are old hands at the game and they like many others can remember when frequencies were a thing to be guarded, not shared, unless you could trade one-for-one.

Today, that's hard to appreciate. You can buy frequency guides at most decent radio stores, and read the latest right here in the pages of CBA or even browse a microfiche listing sanctified by the DoTaC. This is truly a world away from those days when frequencies were passed down from father to son as a rite of manhood ("Here, son - drink this yard of ale and then recite the 64 UHF police channels!"). It's highly likely that the first thing you'll buy after a scanner is a frequency guide. At $20-$30 they're very affordable and give you "instant scanning". But which guide to buy? We've looked at the three most popular scanner guides - the perennial ESG, the Scanner Fanatics' Frequency Register and Access Communications' Register of Government Radio Frequencies.

ESG

Editions: all states
Cost: $30
Format: 230 pp (NSW), A5 in vinyl ring-binder
Available: most radio stores including South Pacific, TC, and Jensen.

Over the years, Richard Barrett's ESG frequency registers have become the standard reference of scanning enthusiasts. Barrett compiles his list directly from the microfiched pages of AMFAR, breaking down the voluminous records into five basic categories - transmit frequency, receive frequency, callsign, user and transmitter location.

With the information recorded on computer, Barrett can sort the database by any of these categories and now markets each states' ESG in four versions - indexed by transmit frequency, callsign, user and transmit location. The "by-frequency" series remains the favorite of Australian monitors so this is the one we chose.

Each register is made up of hundreds of single sheets in a stiff A5 ring-bind folder. This is a handy size for the briefcase or glovebox, and has the added advantage of allowing you to create your own pages, punch the requisite amount of holes and customise your ESG (of course, you can do likewise with a bound book but first you have to remove the binding and hit the whole thing with a hole-punch before you start adding pages of your own).

There are plenty of registers, lists and guides competing for your scanning dollar, says David Flynn - which one is for you?

The ESG is easily the most comprehensive frequency guide in Australia, listing as it does every single user for each allocation (with the exception of amateur and low-power services, although it does list UHF CB repeaters). It spans 35 MHz to 520 MHz with appropriate gaps for broadcast and amateur allocations. Although it does list the military aviation band you don't get any of the newer 800 MHz commercial services.

The register is strongest as a ready reference for "who's on that channel?", "what frequency does this company use?" or "what can I hear in this area?". If they hold a licence, you'll find them in the ESG!

The format does have some drawbacks. Firstly, the "tx location" varies from being the name of a town to being the name of the hill or mountain where the actual transmitter is located. If you don't know where Mt Wondurrigah, North Star or "Pallamallawa" are, join the club! Only if you have first-hand knowledge of the area, are armed with an Australian atlas or find some hint in the name of the frequency user can you overcome this.

Additionally, the ESG is based solely on AMFAR and thus cannot distinguish between an active user and someone who may rarely if ever get on air. The "transmit" site isn't a reliable guide to local activity, nor will the users' company name as listed in AMFAR match the name by which you know them best.

Finally, the ESG register doesn't include any real operational information. It remains first and foremost a frequency guide, and the bottom line is that it gives you little more than a string of digits to punch into your scanner. After that, you're on your own. But there are thousands of those strings of digits, for every village, town and city. If you need to know who is where, or have interest in a very specific area, then go for the ESG - the frequency detective's best friend!

Register of Government Radio Frequencies

Editions: NSW/ACT only
Cost: $20
Format: 102 pp, A4, spiral-bound
Available: Access Communications and most AOR dealers, including Dick Smith Electronics.

Whereas the ESG guides are frequency-based - that is, you look up a frequency to see which service uses it - the Register of Government Radio Frequencies (RGRF) turns this around and is indexed by service.

As such it's much more in line with how most people scan, and although there are always those "who IS that?" instances there are likely far more cases of a monitor setting out to listen to the police, am-

bulance, trains, airband or what have you.

The introduction states from the outset that the RGRF "is not a frequency guide. It does contain frequencies but the publishers consider them to be only a small part of the overall monitoring picture. When listening to the various government authorities, it is often frustrating trying to understand their radio codes and callsigns".

This is one of the many strengths of the RGRF. It doesn't point you towards a frequency which may be in use in your area and leave the rest up to you. Instead, the RGRF is obviously the result of many hours spent in front of a scanner rather than a microfiche reader.

RGRF CONCENTRATES ON GOVERNMENT SERVICES

As its name indicates, the RGRF concentrates on government services, and you must admit that these form the vast bulk of scanner listening - the "triple O" emergency services (police, fire brigade and ambulance), councils, bushfire brigades, public transport, rescue and volunteer emergency associations ... to these and other NSW services you can add ACT allocations (including Parliament House, the War Museum and the Australian Institute of Sport) and assorted federal bodies.

The authors have also seen fit to include a section of "associated services" covering the civilian and military airbands, VHF marine band, amateur repeaters, various defence channels and even the US Navy's FleetSatCom network. This is a most appealing collection. Each service is listed alphabetically with details of frequencies (and channel numbers where appropriate), operational districts, callsigns, codes and other monitoring information.

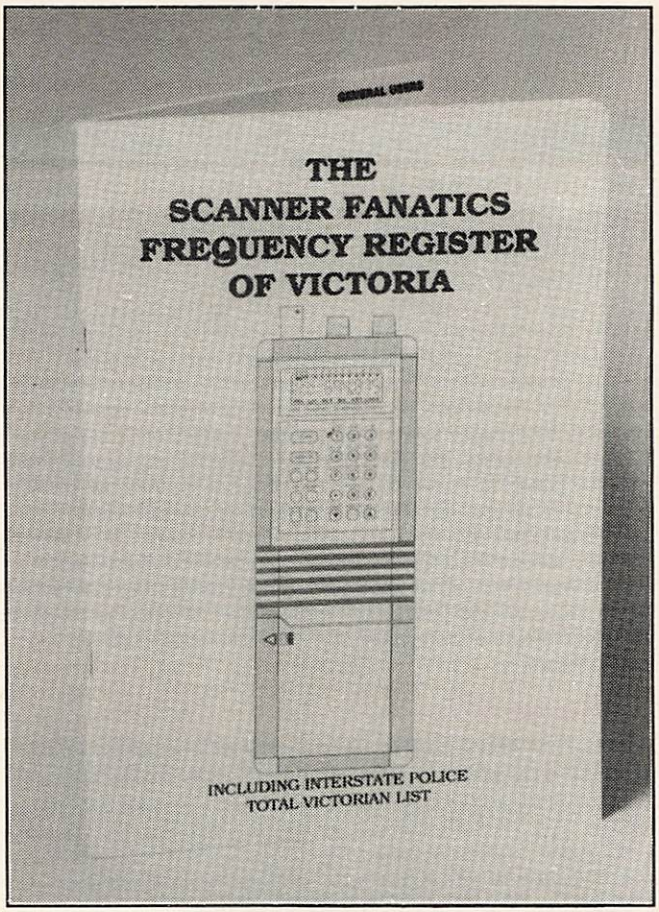
Disadvantages? Only one, that being that the RGRF is only available in a single NSW/ACT edition and at this stage there are no plans to produce versions for other states.

It's definitely the best buy for everyone except a "frequency detective" who needs a full DoTaC-based list of allocations. The RGRF is concise, informative, up-to-date and catapults you right into the hobby and action of scanning. A true listening guide, and top value.

Scanner Fanatics' Frequency Register

Editions: Victoria, NSW, Qld
Cost: $25
Format: 72 pp (Vic edition), A4, printed and staple-bound
Available: various retailers including Andrews, Just Communications, Powerband.

The Scanner Fanatics' register combines the best features of the other two registers. It is based on AMFAR but also includes additions from other sources, including private and published loggings. It is indexed by frequency yet tends to include all users of an allocation rather than just one, and follows this with separate sections on the most popular users - police, ambulance, fire brigades and aircraft.



It works extremely well as a frequency guide, plus there is the added bonus of maps, codes and callsigns for those favorite "triple O" services.

There are also separate listings for taxis, the VHF marine band, RACV major security companies and the media, the latter rather cheaply bulked up by including actual broadcast channels into the list.

The introduction advises that "it is legal to listen to scanners but it is illegal to use any of the information received against anyone to your advantage", although a clarification of the illegality of listening to telephone traffic on your scanner could also have been included - especially as the register lists both the 500 MHz and 800 MHz mobile phone allocations.

The register begins with a few dozen allocations between 20-70 MHz before it hits high gear with the VHF mid-band and then works its way through to nearly 1300 MHz. Inclusions in this are the airbands, amateur bands, TV and FM broadcast bands.

There's some info which is merely padding - lists of CB channels, the 10-code and joke 13-code, a section on "truckies' lingo" and a list of UHF CB repeaters.

And the section headed "Cellular Telephones" is in fact a band plan of the spectrum from 820-960 MHz, with several services which aren't yet in operation (digital cellular and aircraft phones being among them).

But there's no shortage of frequencies and useful information which should delight the scanner enthusiast.

The Scanner Fanatics' Frequency Register should suit every beginner and quite a few already into the hobby.

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by Patrick McDonald

A LL ABOUT COMMUNICATION RELATED COMPUTER PROGRAMS

Computers? Have we got COMPUTERS?! Well, it sure looks like lots of you guys and girls in the radio hobby have got plenty of computers now.....and modems to boot!

In fact I never had so many wavelength nuts logging on at the 'Shortwave Possums' computer bulletin board.....and a great many of you arrived electronically on my doorstep, so to speak, soon after the last red-hot issue of CBA hit the streets. Of course, I got some good and useful feedback via the oldtime Australia Post 'snail mail' route, and this was welcome too. I like to hear from you, my dear readers, by whatever methods tickle your respective fancies, to find out how you are using computers in the radio hobby and what you would like to see discussed in these esteemed pages. OK, let's get on with it, then.....I do tend to waffle on a bit, don't I? Two new software contributions just in at the ONLINE desk, courtesy of Sydney software author and keen radio user James Burns, and I thought you all might be interested in hearing something about them, due to the continuing interest among radio folk in the possibilities of computer control of receivers and transceivers.

FRG Fly-By-Wire

First, CATTEST2.ZIP is Jim's own creation, designed to control the excellent and ever-popular Yaesu FRG-8800 communications receiver through its CAT interface (hence the name). Like the CAT11A.ZIP software, reviewed here in ONLINE some time ago, Jim's program is designed to make entering frequencies into the FRG-8800 quick and easy. Though the program is fairly simple, Jim provides it absolutely gratis, as 'freeware', and supplies the BASIC source code too, so users can modify, hack and otherwise improve the program to their little hearts content. This source code is really a great advantage, because users with even a beginner's grasp of the simple BASIC computer language can thereby get an good idea of how to write such interface programs and, perhaps, move on to more and more complicated efforts. In fact, Jim has asked me to publish his address and phone number so that he can get some feedback on who is using similar programs and what features they are looking for in future software.

So, feel free to contact James at *Flat 4, Nurses Home, Macquarie Hospital, North Ryde NSW 2113 - phone (02) 887-5917*

As well, he would like to hear from others who are writing radio-related programs of any kind, to exchange notes.

...And One For Ham Rigs

Jim has also passed on a second program called PROCAT21.ZIP, a rather sophisticated 'freeware' creation from the US, designed to control the various common transceivers used by licensed 'ham' radio operators. Successful in its first version, PROCAT21.ZIP has now been upgraded by the author to version two, with more features and supporting both EGA and VGA graphics if your system has the appropriate video card and monitor. Donald Rasmussen ('Don's Original Designs') has indeed turned out a super effort, affording nearly complete computer keyboard control of your transceiver, with user-defined command keys, contest callsign duplicate checking, and transceiver memory loads for the Yaesu FT747GX. Good news is that the system also works with those Kenwood, Icom, or other Yaesu transceivers that have built-in provision for computer control.

As usual, to run this and other programs reviewed here in ONLINE, you will need to be the proud owner of a generic IBM compatible computer. PROCAT21.ZIP also needs, in addition, a hard drive, a standard serial port, and either an EGA or a VGA graphics card. A special computer-to-radio interface is required, as well, to connect the computer's serial port to the transceiver's CAT control. Don says this gadget is normally easily available from most YAESU transceiver suppliers. These interfaces can also be fairly quickly constructed by the handy radio enthusiast, and are generally compatible between manufacturers. For example, Don reports that a Yaesu FIF232 interface works great with his Icom transceivers, simply by connecting Yaesu DIN #1 to the Icom remote connector centre, and Yaesu DIN #3 to the Icom remote connector ground. Once properly interfaced, Don's PROCAT21 program allows instant QSYs using the numeric keypad on the IBM computer keyboard. The control keys are cleverly grouped to make tuning the transceiver easier than doing this by using the transceiver VFO knob. You can also add other commands to the transceiver, and assign any key you wish to perform that particular command. Finally, you can also change the on-screen colors to suit your particular weird preferences, and adjust the on-screen clock to show your very own time zone.

Sounds pretty good, huh? Should be just what some of you radio hams are looking for. Now, is the PROCAT21 software difficult to set up? Nope. Just make sure your transceiver and interface are turned on, the NUMLOCK key is engaged and ready, and then type the command PROCAT and hit de ole ENTER key! The program will show you the opening screen, with the station clock in the upper left corner of your VDU, and 10 VFO frequencies listed along the right border of the screen. One of these VFO frequencies will have a highlighted background. You can change the highlighted frequency by pressing the cursor up or the cursor down key, these keys are located just to the left of the numeric keypad. The overall operation is reasonably intuitive and most operators will find it easy to work out.

Author Don concludes his documentation (supplied with the program) with the following sentiments: "I hope Kenwood and Icom guys like this Yaesu program too. I view PROCAT21.ZIP as a sensible approach to computer control of HF radio gear.

I don't see any reason to transfer control from the rig to the keyboard unless it makes operating easier or more fun. The bottom line on the program is that it makes tuning around a band or various bands instantly available with only a keystroke or two. It also provides a no-hassle way to keep from being embarrassed by calling the same 'big gun' contest station twice! Try my program and its variations with whatever rig you use, and if you think it's the computer control program you want to use, send me a letter. That's all I ask in return for this program." Such letters may be addressed directly to *Donald Rasmussen, 24 Paseo De Laura, Oceanside, CA 92056, USA.*

Sheridan's Scanner Hitlist

Another great contribution to the SWP computer BBS lately was FREQUENC.BBS, a new, completely updated, comprehensive frequency list from longtime scanner listener Peter Sheridan in Sydney, as accurate as the human brain could make it as of October this year. This listing is, the compiler says, "the largest free database available for scanner operators" currently available in Australia.

He has complied it from many sources, not the least of which has been his own extensive research and listening, and FREQUENC.BBS sure looks mighty damn complete to me, ranging from the Waverly Relay Tower way, way down on .010 kHz up to the VK2RSY Beacon on rarefied 1300 MHz!

Probably most interesting to Sydney area CBA readers will be Peter's Big Smoke VHF/UHF listings, which are of course always changing. This phenomenon is nevertheless one of the great joys of scanner listening.....there's also something new to hear tomorrow! In his introduction to the listing, Peter notes that he would like user updates to make the next edition of FREQUENC.BBS even better and more complete. You can phone him on (02) 315-7129 with your own additional loggings and with any new ideas you may have for scanner databases.

If you don't want to take the typing time to enter Peter's massive array of radio data into your favorite database, you can simply load the file into your text editor or word processor, and then do searches for the name or frequency you are looking for. I find stuff real fast even on my antique 4.77 MHz 1983 PC!

Remember, however, that many low-powered stations, transmitting with only 2 or 3 watts, are hard to hear, unless you live nearby, and that some companies and users rarely employ some of their channels. So there is still plenty to find, especially if you live in or near a large city. In fact, just to tease FREQUENC.BBS users, Peter says he has left a gap between 169.020 and 169.240 kHz. So check out this mysterious area of the VHF band now and find out what's hidden there...!

Getting The Good Oil, Online

In the last few ONLINE columns, I've nattered on quite a lot about computer bulletin board systems, linked up all over Australia and all over the world via the ordinary telephone lines. This link-up allows radio listeners to keep in touch easily with all the latest radio news, for just the cost of a local phone call. This past fortnight, for example, I got word from the US that the Voice of America was opening three new transmitters at its famous Bethany Relay Site, and was offering numbered QSL cards. Within a couple of days this message flashed all over the world and thousands of crazy people like yours truly were listening in at 3am as dignitaries cut the red ribbon in Ohio and 3 x 250 kW fired up in the curtain array antennas! On a more modest scale, I received a request recently from World Harvest Radio International operatives in Canada to monitor WHRI's 7315 kHz channel at 1100 UTC, as part of the planning for a new worldwide Croatian language broadcast via this station's facilities. Trouble was, they wanted quick feedback from further west too. No worries! I put out a call via the national shortwave listeners 'echomail conference' and within two days had another experienced monitor listening for WHRI's signals in Adelaide. Very useful indeed.

But probably the most commonly used facility of this computer message-moving system is the exchange of international radio program schedules. Those of you who listen regularly to Swiss Radio International, Deutsche Welle, Radio Beijing or even the more exotic stations such as the Voice of Ethiopia (one of my special favorites), know how hard it can be to keep up with time and frequency changes. Well, the international version of the radio echomail conference supplies these details regularly, usually well in advance of program and frequency changes. In fact, I usually copy them out as files and keep them posted on SWP BBS for easy access for all callers, just like nailing 'em to the neighborhood laundromat noticeboard.

OK, gang, we're getting towards the end of this issue's input. Gotta leave you the usual address and phone number so you can be in touch while you're waiting for the next bonza issue of CB ACTION magazine. This is also the exact place where you can 'download' CATTEST2.ZIP, PROCAT21.ZIP, FREQEUNC.BBS and find lots of radio info on scanners, CB radio, and shortwave radio listening in general. Phone 24 hours daily, via your computer and modem, on (02) 651-3055, or write me at ***Shortwave Possums BBS, PO Box 357 Round Corner, Dural NSW 2158.***

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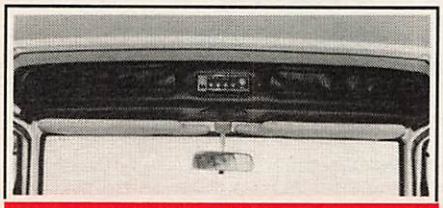
ROOF CONSOLES

1990-1991 FORERUNNER CENTRE ROOF CONSOLE

A console is also available for mounting 2 CB units (see the 80 Series roof console below). Similar consoles available for early Forerunner, F100-F250-F350-F150 (1980 on), Hi Lux (all models), Jackaroo, Lada Niva, 70 Series Landcruiser tray back, Navara, Pathfinder, Renegade, Rodeo.

80 SERIES LANDCRUISER CENTRE ROOF CONSOLE

All 80 Series roof consoles are available with or without provision for the genuine altimeter/fuel gauge assembly. Several designs available; one similar to the Forerunner console above.



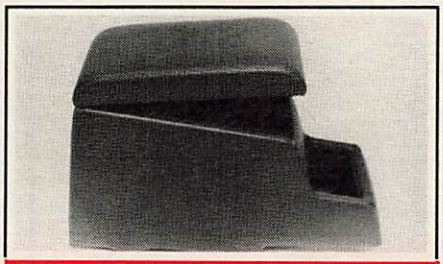
70 SERIES TROOPCARRIER ACROSS-WINDSCREEN ROOF CONSOLE

This console has 2 compartment openings, each with an elasticised vinyl flap which keeps red dust out and stored items in - fascia layout is optional. Similar consoles available for Blizzard, Daihatsu 4x4, Drover, F100-F250-F350 (1969-1979), G60 Patrol, L300, 40 Series Landcruiser Troopcarrier/tray back/SWB, Landrover, Rocky, Scat, Sierra and most passenger vans and trucks.

MQ-GQ-TI PATROL/MAVERICK CENTRE ROOF CONSOLE

Comes complete with a compartment door on the passenger side. Similar consoles available for Bronco, Chev Silverado, 55-60-62 Series Landcruiser, 70 Series Troopcarrier/MWB/SWB/Bundera, Pajero, Range Rover.

FLOOR CONSOLES

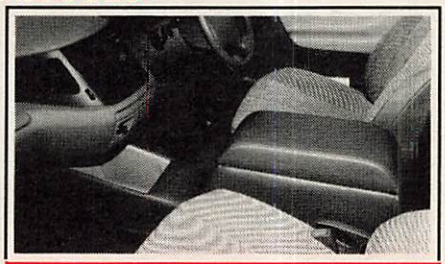


RODEO FLOOR COMPARTMENT

Various designs are available for Bronco, Cherokee, Courier, Forerunner, F100-F250-F350-F150, G60-MQ-GQ-TI Patrol, Hi Lux, Jackaroo, L200, 40 & 55 Series Landcruiser, Maverick, Mazda B2600, Navara, Pathfinder, Pajero, Range Rover, Renegade, Rocky, Scout, Sierra, Tarago, Tercel, Triton.

80 SERIES LANDCRUISER FLOOR COMPARTMENT

Complete with a hinged armrest and storage bin. The fascia area can house a CB, tray, or deep pocket. Similar consoles available for 60-62 Series Landcruiser, 70 Series Troopcarrier/MWB/SWB/Bundera.



TARAGO CENTRE FLOOR CONSOLE

Most consoles have a fascia panel under the dashboard. Available with or without hinged armrest/storage bin. Similar consoles available for Bronco, Cherokee, Drover, F100-F250-F350-F150, Hi Lux to 1983, 60-62 Series Landcruiser T-bar, L200, Nissan 720, Range Rover, Renegade, Sahara, Sierra.

ALSO AVAILABLE

- Heavy-duty floor mats with non-slip rubber backing. Neatly fits your vehicle's footwell, plush pile carpet in 17 colours
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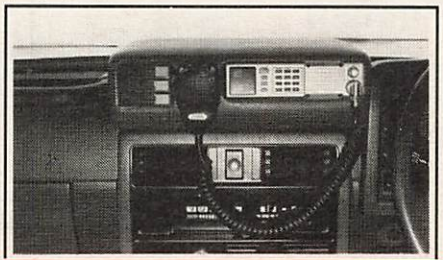
- Digital clocks, switches, gauges, eyeball map lights

DASHBOARD PODS

70 SERIES LANDCRUISER TROOPCARRIER/TRAY BACK /MWB/SWB/BUNDERA DASHBOARD POD

3 designs available, each with optional fascia layout. Trays and cassette holders can be fitted on top if desired. Each pod is upholstered in a padded vinyl finish to match the crash pad. As shown above, the original pod can be discarded and provision made to re-mount the auxillary fuel gauge (52mm fuel gauges are also available).



GQ-TI PATROL/MAVERICK DASHBOARD POD

Vacuum moulded finish to match the crash pad. Ideal for mounting CB, cassette holders, speakers etc. Similar pods available for MQ Patrol, Range Rover, F100-F250-F350 (1969 to 1979).

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Ken Reynolds looks at the new...

UNIDEN UH-055 -THE IMPORTANT PORTABLE

At a glance the UH-055 looks remarkably like the well established UH-005 and so it should. The new model, although superior in most respects, makes use of the 005's case except for the control panel which has undergone major changes.

The battery pack is physically smaller on the 055 but its capacity has actually increased by 100 milli-amp-hours while suffering a voltage reduction of 1.2 volts which is equivalent to losing one internal ni-cad cell.

On the UH-055 the old 40-channel mechanical switch and numbered dial plate have given way to the now common place LCD (Liquid Crystal Display) offering user programmable scan groups with priority channel selection, back-lit display with timer to 'save' battery power and a new 'contact-breaker' style rotary switch for channel selection.

WHY IT'S AN IMPORTANT PORTABLE

I called this radio the important portable for one main reason - Uniden has recognised that there is room in the market for two UHF CRS portable transceivers catering to different market levels. Most retailers can tell you there is a distinct multi-level demand for the highly desired hand-held UHF transceivers - the user with a limited budget and or only simple requirements, and the user who wants more sophisticated features than a base level rig and/or doesn't care about the price. The UH-005 caters nicely for the 'economy' end of the market and is to be retained as a current model to be marketed along-side the newer hi-tech UH-055 model. The only flaw I can see in this strategy is the naming of the two products. The designations are too similar and many potential customers (and others) are confused by the similarity. As with the mobile Uniden rigs - UH-007 and UH-077 - the confusion can be embarrassing for the seller and the buyer when someone orders a 007 expecting to receive a 077 at an impossible bargain price.

The new UH-055 complete with standard battery pack is an inch (25mm if you like) shorter than its less complex companion and the case color has shifted from charcoal gray to charcoal black - not a big change but enough to set the two apart when viewed side-by-side.

But this is where the resemblance ends.

REBUILT FROM START TO FINISH

Internally the new rig sports a complete re-build from start to finish. To cope with the new features a microprocessor has been commissioned to handle the extra complexities like user programmable scanning and priority operation. The old hinged chassis has gone too as have nearly all the conventional style components to be replaced with a single piece sub-frame carrying two main 'double-sided' circuit boards wearing the new technology SMDs - Surface Mounted Devices - which permits automated assembly of complex circuits that are found in today's CB products. One circuit board is permanently mounted within the main frame while the second back-to-back board is built-in to a second similar sized - but lighter gauge - sub-frame that slots snugly into the first. A frame within a frame so to speak - a construction technique I haven't sighted before in a consumer product. Not quite as easy for service as the older model but none the less, quite accessible when compared with some of the competitive products. All things considered, the construction and quality of materials used is very good. The circuit board layout is typical 'state-of-the-art' for SMD technology with most of the design produced by a hi-tech CAD system.

BUT THERE IS ONE BACKWARD STEP

One of the great features in the old model (UH-005) was the ability to connect directly to an external 12 volt power source like your average CB regulated power pack or the cigarette lighter socket in the 'mobile'. It's sad to see the facility has been omitted from the new model - a definite backwards step in my opinion.

OPERATION

Readers who are familiar with the scan operation features of the UH-077 of the GME TX-472s mobile rigs will be able to operate the UH-055 immediately without even reading the instruction manual. The scan controls are virtually identical with the mobile models. For those unfamiliar with the process of programming the scan groups of which there are two - open scan and group scan - is actually easier done than said in this case. Pressing the GRP for group button (the left of the three buttons located immediately below the LCD) selects either GROUP scan or OPEN scan. The LCD displays a G to signify the group mode has been selected while the absence of a displayed character denotes the open scan mode.

To add or delete a channel number from either scan group the procedure is really quite easy.

(continued over page...)

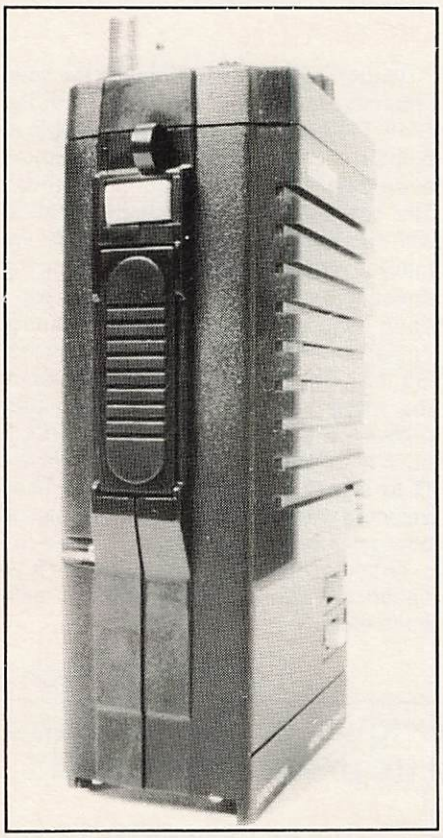
Just when you thought there were no more new UHF rigs to review, up pops the UNIDEN UH-055 sporting whistles and bells that its predecessor didn't know existed.

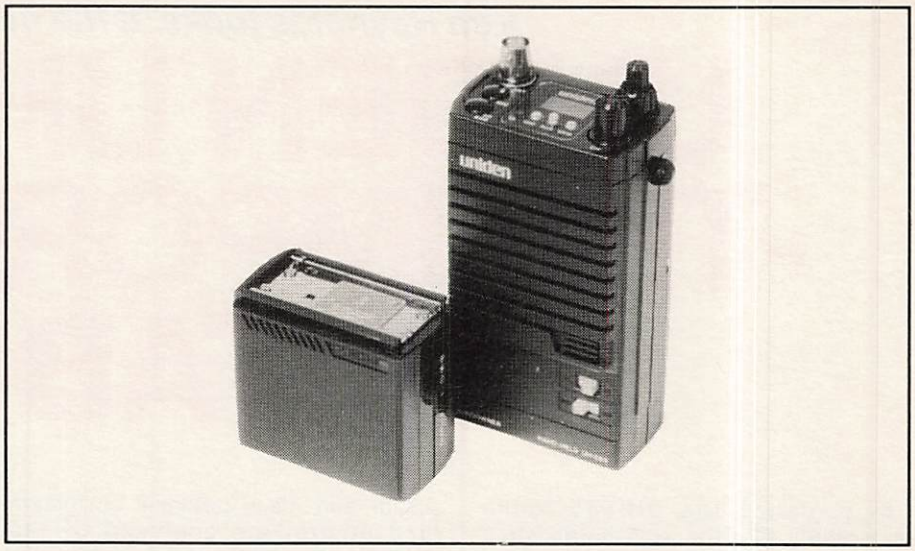
UNIDEN UH-055 THE IMPORTANT PORTABLE

(continued...)

Use the channel switch to select the desired channel which will be displayed in the LCD window. In poor light or at night the display can be illuminated by a small in-built lamp that is activated by the LAMP button located immediately above the side mounted PTT switch. The light is automatically extinguished after a few seconds operation. The letters ME displayed in the LCD window signify the displayed channel is already selected in memory. To remove the channel from memory, press and hold the MEM button for about two seconds and the ME display will disappear and in so doing the displayed channel will be removed from the current scan group. To add a channel or return the last channel from the group simply repeat the process and the symbol ME will indicate the channel has been saved. To add or delete more channels - from 2 to 40 - simply select the channel and press and hold the MEM button until an audible tone indicates the function is performed.

In the GROUP scan mode a PRIORITY channel is automatically selected by the resident position of the channel selector switch when the scan mode is activated. For example, enter channels 1 - 5 and 40 into the GROUP SCAN memory and select channel 13 without entering it into memory. Switch to GROUP SCAN mode and activate the SCN (scan) button. The UH-055 will now scan the channels in the following order:- 1-13-5-13-40-13-1 and so on. If you alter the channel selector position - even while scanning - a new priority channel is selected, again by the resident position of the channel switch. A DUAL WATCH function is also incorporated in this mode but I will avoid the full explanation here for the sake of space. In OPEN scan mode the selected memorised channels will be scanned in order with the PRIORITY function being ignored. After a couple of minutes hands-on experience you find the whole concept easy and very effective.





1. CHANNEL LAMP SWITCH: Used for night operation
2. PRESS-TO-TALK SWITCH: Changes mode from transmit to receive
3. POWER HI-LOW SWITCH: This selects RF output power. In High mode, the output power is 2.5W (rated output) and Low is 350mW
4. DUPLEX/SIMPLEX SWITCH: Allows the transceiver to operate via a repeater station when switched to channels 1, 2, 3, 4, 5, 6, 7 or 8.
5 ANTENNA CONNECTOR: Connects the flexible antenna provided with the UH-055.
6. CHANNEL INDICATOR: LCD indicates the channel number in use.During NORMAL Mode: Displays the channel selected by the CHANNEL SELECTOR Switch.During SCAN Mode: Displays the channel currently being scanned.
7. SQUELCH CONTROL: This Squelch Control is rotated to cut off or eliminate received background noise.
8. OFF/VOL. CONTROL: Turn clockwise to apply power to the radio and to set the audio volume to the desired listening level. Fully counterclockwise to turn the radio OFF.
9. CHANNEL SELECTOR SWITCH: This switch selects the desired channel for transmission and reception. All channels, except channel 11 may be used for Call Channel. Channel 11 has been reserved by the D.O.C. for emergency communications involving the immediate safety of individuals or immediate protection of property.
Channel 11 also may be used to render assistance to a motorist. This is the D.O.C. rule and applies to all operators of citizens band radios.
10. MEM SWITCH:In the NORMAL mode: Press the MEM switch to program or disable channels in the selected scan memory.In the GROUP SCAN mode: When scanning, press the MEM switch to HOLD the channel currently being scanned.

PERFORMANCE

The receiver sensitivity claimed by Uniden for the UH-055 is 0.3 microvolts for 12dB SINAD and that's exactly the way we found it. The recovered audio from the unit is not exactly HI-FI but I think it is superior to the UH-005 having compared the two models side-by-side. The mute threshold sensitivity was quite good and reliably opened at 0.2 microvolts signals while in the maximum (tight) position a signal strength of 1 microvolt was required to break the silence.

The transmitted signal sounds quite good at the receiver terminal and high power level was 2.9 watts, a little higher than the manual's estimation of 2.5 watts. Low power output was 0.41 watts, still higher than the specification sheet reckoning of 0.35 watts.

I mentioned earlier that a 9.6 volt battery pack is supplied standard with the UH-055 and the older model operates normally on a 10.8 volt standard pack. Hmmm. Well you guessed it. Since the two rigs use the same case mouldings it stands to reason that the battery packs are identical in their mounting hardware.

Yeah, good guess.

A 9.6 volt battery pack is supplied with this new unit as against the 10.8 volt pack supplied with the earlier UH-005 model.

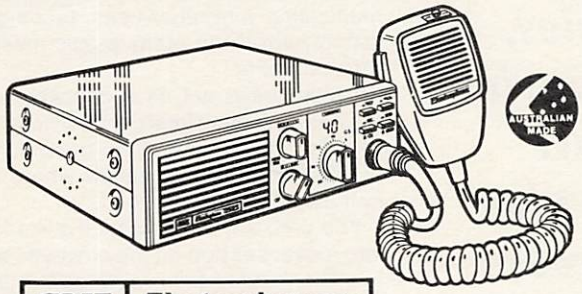
The temptation to slot the higher voltage pack on to the UH-055 was just too much to resist and low and behold, the high power output immediately zoomed to 4.8 watts.

The peak reading was short lived and faded away to about 4.2 watts after a minute or so. I scanned (pardon the pun) the manual from cover to cover trying to find a note that said no cheating with battery packs was permitted but, alas, no such bad luck. In fact the general specs list that usually outlines the maximum and minimum operating voltages offered no clue at all to the limits. The test voltage however was specified at 10 volts. There may be some hazard in using the battery pack from a UH-005 on the new model but there is no caution about the practice and you can bet that I am not the only bloke to explore the possibilities.

SUMMARY

It is good to see Uniden producing two current portable UHF models especially for a unique Australian CB service. They must reckon the market here is big enough to be worthwhile. The UH-055 is not the most compact contender for your UHF dollar but it is packed with good features, good performance and good quality componentry in a well engineered package. The transceiver appears quite rugged and from close examination of the construction I would expect the unit to be extremely reliable under all but the most severe operating conditions. The rig is expected to sell for around $600 and should be good value for money at this price.

GME Electrophone



GME | Electrophone:::

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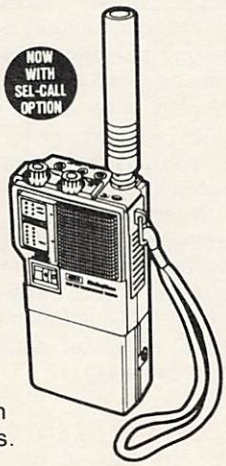

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David Flynn explains how to...

Get the message!

There's an old saying which my thirtysomething-ish brain can't recall word perfect, but it is on the nature of knowledge and advises that "knowledge is of two kinds" - the knowledge itself, or knowing where it can be found.

Because none of us are masters of every field, we need to be able to contact others who posses the knowledge and expertise we lack. You think this would be an easy thing - after all, our very hobby is based on communicating.

Yet it's not always as easy as picking up the microphone and calling for the resident DXpert or techie. Especially if your interests lie in shortwave radio or scanning - radios that don't have mikes to begin with!

So where do you turn? There's CBA, of course, and a few other local and overseas magazines... radio club newsletters, and for SWLs a smattering of "DX programs".

Wouldn't it be nice if you could reach out and tap into a community of radio enthusiasts from around Australia (and indeed the world) and exchange information with a sometimes daily turn-around? Wouldn't it be great if you could do it from home, any time that suits you?

Wouldn't it be ideal if it were - dare we suggest - actually FREE, in these days of the "user-pays" philosophy?

Score three out of three. There is such an avenue, and if you are one of the increasing number of radio hobbyists who have purchased a home computer then you're just a step away from joining "Oz-Radio" - the Australian Radio Forum, an "online" computer network that's just a phone call away.

A Bit About Computers

For the half of our readership who haven't actually got PCs yet, here are a few words of explanation.

Unless you've been living in a cave for the past decade you cannot have escaped noticing the personal computer or PC. You really can't explain much about the PC and what it can do for you in less than a few hundred words, so I'm going to chicken out and move on to bulletin board systems, better known as a BBS.

Bulletin Boards

What's the difference between a home PC and a BBS? Nothing except the software, the program that lets you tell your PC what it should so.

Word processing software basically lets you write and layout text. Database software allows you to maintain and manipulate records of staff, stock and the like. BBS software lets you allow others to access your PC via the phone line and in a sophisticated way recreates the "bulletin board" which you'll find in endless offices and schools. Except that the computer bulletin board can hold near endless amounts of public notices, private mail and - and added bonus - free or low-cost software which you can "download" from the BBS to your own PC across the Telecom phone line.

To get your PC and the BBS together you need a "modem", literally a black box which connects between your computer and the phone line, and some "communications" software.

The BBS has a modem, too, and a dedicated phone number, although the number is no different to a private or business number and so costs as much as a standard call.

Your PC dials the BBS, connects (if the number isn't busy) and you "log on". From here until you "log off" your PC acts as if it is a terminal to the BBS, with the board's own menus, files and the like.

Traditionally there are two types of BBS user - those who walk the wires in search of new and nifty software; and those who are more interested in the act of communicating with other uses, reading and taking part in the many public message areas on offer.

These areas act as a doorway into a national and even international network of friends. They're one of the great benefits of telecomputing, especially where radio enthusiasts are concerned.

You probably know what it's like to get into a chat session on the airwaves with a few like-minded fellows, to gather at the local radio club or a mate's place to swap the latest frequencies, radio tips, opinions on new gear and the like.

Now extend this to a friendly meeting place for radio nuts right across Australia, indeed around the world, yet one in which you participate whilst seated in front of your computer. THAT is what these electronic message areas are all about.

Some BBSs refer to them as forums or conferences but, it's all the same... use the phone to call a local BBS, tap a key and up on your computer (any computer, not just an MS-DOS/IBM system but an

Get the latest scanner frequencies, hot DX countries, shortwave schedules plus plenty of radio "goss" into the bargain - and all for the cost of a single phone call!

Apple, Amiga, Microbee, Commodore 64 or even humble old TRS-80) appears screen after screen of notes, jottings, explanations and exchanges on the topic of that message area.

There are forums on computer technicalities, chess, science-fiction, religion, even a massive "free-for-all" aptly entitled "Life, The Universe and Everything".

OzRadio - A Wealth Of Information

Of particular interest to us, of course, is the all-Australian radio communications forum which goes by the tag of OzRadio. This message area is now available for the asking to just about any BBS in Australia... and once your local board is carrying it you can take part in all the fun for the cost of one call to your local BBS. The computer network will take care of the rest, echoing your messages onto other boards so that within mere days you are in touch with radio fans as far flung as Hobart, Cairns and Perth.

To illustrate the diversity of OzRadio, here's a rundown of topics which have been discussed over the past month at the time of writing:

Sydney members of the ARDXC invited SWLs to a DXpedition to Bargo and reported back on the many stations they heard; news on shifts and changes on the VHF TV and FM bands in Wollongong; some fascinating background on the UHF TV relay at Forresters' Beach, NSW; new frequencies for Adelaide airport's ATIS; a discussion on digital audio broadcasting; new broadcasters in NZ following the Government "sell off" of 160 FM frequencies; a new UHF CB repeater for Gosford; frequencies and codes for security companies in Sydney and the central coast; and a number of "what can you hear on this one?" messages, which take a single mystifying frequency and draw it to the attention of dozens of monitors whose combined efforts quickly bring an answer.

There's plenty of instantly useful info, too. The very latest, hot-off-the-press schedules, loggings and best paths to Australia for shortwave stations as diverse as Radio Bangladesh, Spanish National Radio, the BBC, Swiss Radio International, HCJB, Deutsche Welle and many more; Sydney scanner buff Alex Wellner was posting frequencies for NSW hospitals; one Andrew See asked for and received plenty of advice on buying a new scanner and thence a discone, plus tips on where to get the best deals; several hams and non-hams alike discussed packet radio;

Patrick McDonald chimed in with news of a new frequency database program which had just become available from SWP, which led to some discussion by users as to which programs they preferred and the reasons for this, while Ian Baxter reported on an informal get-together of Sydney DXers.

Then there was an update on encrypted radio services such as Melbourne's Greek language VHF service; the latest Qld and Vic VHF/UHF scanner frequencies; tips and techniques on monitoring military satellites and USAF HF signals; frequencies for the major Sydney airshow, including that used by the RAAF's Roulettes acrobatic team; news on those mysterious HF "numbers stations" including frequencies and times from US clandestine and numbers expert "Havana Moon"; transcriptions of a series of items appearing in the Sydney Morning Herald on monitoring "numbers" stations, advice on the test transmissions of a community FM station in outer western Sydney, and frequencies for the 1991 Variety Club "Bash".

The Clubroom That Never Closes

Now doesn't that whet your appetite? What's more the OzRadio forum is a happy, easy-going place, inhabited not by snobs and stuck-ups but, by average radio hobbyists.

Regulars appearing in OzRadio include many of this humble mag's staff and other well-known shortwave, utility and scanner enthusiasts all keen to keep each other in touch with the latest in radio.

And if OzRadio ain't enough there's a global shortwave echo with all the latest right from the US, Europe and further afield... all as close as your local BBS.

As you can see there, OzRadio has a clear leaning towards shortwave radio, monitoring and broader areas of communications, and less to do with CB and ham radio.

Well, there's nothing to stop anyone from posting anything to do with these topics on OzRadio. It probably has more to do with the fact that CB and amateur enthusiasts can pick up the mike and talk to people, asks questions and swap ideas without having to go through a computer, while SWLs and scanner-heads have no such opportunity.

To them, OzRadio is their only meeting place and so becomes a surrogate "radio club" - even better, though, because the this "clubroom" is open around the clock and you don't have to buy a raffle ticket at the door!

Let me stress, though, that OzRadio is not a club or association. It's just an "electronic meeting place" and anyone on any BBS can take part. To keep things running smoothly and help everyone get the most from OzRadio there is a "moderator", Richard Jary.

OzRadio began as a "local" message area on Sydney's popular Shortwave Possums BBS, and spread - slowly at first - to other boards where the sysops tended to be into radio or at least aware of it.

"As the OzRadio name indicates," says Jary, "the conference is designed for the discussion of radio, at any wavelength from DC to daylight, provided it affects or is of interest to Australian listeners. It's basically an area for exchanging news, listening tips, comments, opinions, and in all it's extremely friendly".

"The conference is now on what we call the 'backbone' of the BBS network, which means that almost any BBS operator can be hooked into the feed.

This is pretty important because you can't have everyone around Australia dialling into Possums or a handful of other boards. When OzRadio becomes available on a local BBS, a board that's only a local call and not an STD one, we get more people taking part and a wider range of ideas, input and discussion takes place".

Actually, when you hear these areas referred to as "conferences" you'll probably have the same mental picture as I first did - the image of a live discussion with vast numbers of people all online at the one time.

Because the tag can be a bit of a misnomer it's important to note that these areas are only a "conference" in the sense that they are a gathering place for people with certain and like interests.

That's why I like the term "forum" better - it harkens back to the Roman forum of old, a place where every citizen could have their say.

You'll also hear messages within the forum referred to as "EchoMail" - that is, public mail which is repeated or echoed from board to board.

How It Works

Those readers with a technical bent may be curious as to how this all works, how a few words typed into a single computer (via your temporary "terminal") can find their way to thousands of like-minded souls.

In the wee small hours of the morning while we hapless humans are all asleep, the computer networks of the world are wide awake, chatting away, plotting against us - well, not really!

They're just taking advantage of the low off-peak STD rates and the fact that this is when the humans are least likely to want to call them. Computers dial other computers in a wonderfully ordered manner to exchange mail and files, passing them from one BBS to another down the line. How does your message make its way along the network? Well, it would be ridiculous for every BBS to call everyother BBS. Ridiculous, expensive and time-consuming.

(continued page 49)

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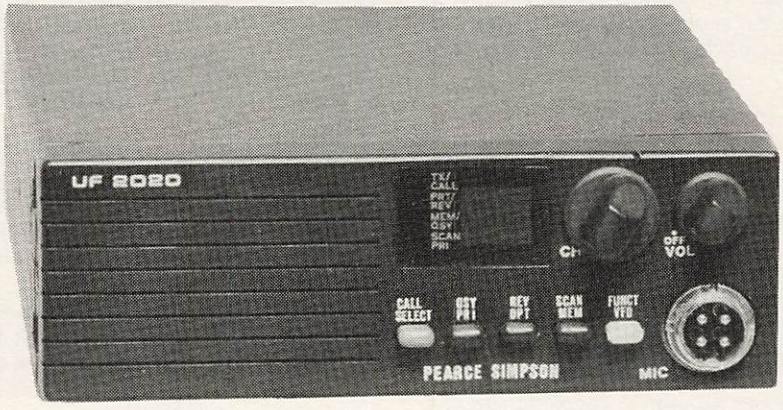

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David Flynn explains how to

GET THE MESSAGE

(CONTINUED.,..)

So they have developed a system of handling messages in a bucket-brigade fashion, up and down a hierarchy which sees perhaps a dozen BBSs call a single larger, central board. In telecomputing terminology, the BBSs are part of a "net" and their mail point is called a "node".

Let's assume you've entered a message in the OzRadio forum at the Shortwave Possums BBS.

SWP, like a dozen or so other Sydney boards, sends and collects mail through a Mt Druitt BBS called The Prophet, run by computer enthusiasts Larry and Helen Lewis.

So early each morning, around 4am (although this time varies between boards) SWP calls The Prophet, automatically forwarding new mail in any forum area and receiving echo messages that have originated on other BBSs so they can appear on SWP. When the other boards in the local net have all logged onto The Prophet and delivered their mail The Prophet in turn takes this large bundle of mail and sends it further along the chain, to a BBS one step up the ladder. The same happens at the other end... one large board will collect this mail packet, hand it on to a dozen other boards and so on, down the line, until every BBS subscribing to the OzRadio forum (among the many others also available) will have not only your messages but those of everyone else who's had their say.

You can appreciate that with this system it only takes a few calls to have your message go from local to national, and this is another reason why OzRadio is a boon to radio buffs.

The turnaround time is within a day, two at the outside. Listening tips and targets are always current and replies to queries start flowing back within 24 hours.

Private Mail

Be aware that like our Roman forum, all messages in OzRadio (and any other conference or echo) are public. Users of a specific forum do avoid exchanging endless messages and chatting away on unrelated topics.

But, from time to time you wander "off topic". Someone asks for frequencies for a certain airport, another chap replies and says he is a pilot, the first replies that he is also and asks what flying school were you with, and before you know it the OzRadio forum is playing host to a discussion on airplanes, bumpy landings and comparisons of the streamlining of various female flying instructors... and don't laugh, it's happened!

To avoid cluttering up the area with such material users are encouraged to continue their discussion onto the private electronic mail network.

There's An Abundance Of Everything

Like so much else in PC land there's an abundance of labels - E-mail, netmail, matrix mail - but, all denote private messages send directly from one user's BBS to another rather than through a public forum.

This is achieved by using a unique network number (different to the phone number) of each board.

From your local BBS you can enter a message addressed to the netmail number of your friend's BBS. The message will be handed along the same route as the OzRadio forum but in the digital equivalent of a sealed envelope, only to be read by the recipient at his home board.

So now's the time to buy that modem (and maybe a computer to go with it..?) and join the fun on OzRadio!

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dxlogbook

with Rob Williams

WHAT'S HAPPENING IN THE WORLD OF SHORT WAVE RADIO...

Well, we're off to a nice hot summer of DXing, packed with new schedules as well as a dash of mediumwave news for listeners who dabble in those lower broadcast bands. Just a short reminder that all times are in UTC (same as GMT) and all frequencies are in kilohertz unless stated otherwise.

☐ New DX sked for Austria

Austria's Shortwave Panorama has been rescheduled for our summer with four airings per week. The first three are Sundays at 1130 on 6155, 13730, 11780; 1330 on 11780; and 1530 on 6155, 13730, 21490 and 11780. The fourth transmission goes out at 0630 on Mondays.

☐ Changes For WYFR

Family Radio in the US have made some changes effective 29/9 for the English broadcasts: to Europe and Africa between 0600-0800 on 7355, 9680 and 13695; at 1600 on 15355, 21615, 21525; 1800 on 21500; 1900 on 15355, 21615; and 2000 on 7355, 15566 and 21525; to Canada between 0200-0500 on 6065 and 9505 (Mondays to Saturdays this broadcast carries their domestic radio programs while on Sundays their shortwave service is aired) and to India between 1200-1400 on 11550.

☐ News From SPARC

Regular readers of my column are already aware of SPARC, the umbrella organisation of most DX clubs in the South Pacific region. One important and popular contribution that SPARC offers is the chance for DXers to get together at conventions where ideas, thoughts and numerous DX tips and tricks can be freely exchanged and expressed. In 1992 the convention will be co-hosted by the Southern Cross DX Club and DX Australia, who will also be celebrating their 10th anniversary. Jerome Van Der Linden, the Southern Cross rep at SPARC, has put out feelers for the 1992 convention - what DXers want to see and where they'd like it to be held. With our vast distances between capital cities it seems more logical to hold it in the country somewhere between our cities to allow as many DXers as possible to attend.

Some suggestions put forward include a chance to do some exotic DXing as well as spend time chatting to fellow Dxers; talks and presentations from experts in the hobby; and visits to nearby broadcasting facilities. Possible locations include Portland (Victoria) and Echuca, which is close to Radio Australia's facility at Shepparton.

Another suggestion is to split the convention into two separate locations - one for DXing and the other for the actual convention, with the dates separated by a few days to allow people to travel. Your comments and suggestions can be sent to Jerome at *The Southern Cross DX Club, GPO Box 1487, Adelaide SA 5001* or through the OzRadio Forum carried on several computer BBSs around Australia. With some people expected to attend from New Zealand this would be an ideal opportunity for DXers of the South Pacific to spend time together.

☐ More Yen For NHK

Mark Huff reports via the International Shortwave Echo of plans for NHK to buy airtime to improve broadcasts to Europe. The Japanese Ministry of P&T sees a need to increase broadcast time from the present ten hours per day to cater for the changes occurring in the Soviet Union. Negotiations are afoot to lease air time over transmitters belonging to the BBC or from Moscow, with an expected starting time of April next. Appropriations of 130 million yen have been requested in the forthcoming budget to meet the expenses. This is around $US 1 million, but with an hours' time on a 500 kW transmitter costing over $100 NHK's additional time won't be anything more than a drop in the ocean.

☐ Synchronised DXing

The International Shortwave Echo carried on the FidoNet computer bulletin board network has been running a "synchronised DXing event", where DXers across the states monitor a particular HF band for a specified number of hours on a certain day. Individual loggings are then posted in the echo for all to see. It gives you a terrific profile of who's on the band and what can be heard, and is like an instant DX magazine full of loggings and new catches. Wouldn't it be a great idea to try the same here in Oz land? Well, now's your chance. So to those DXers who own a computer and modem, why not drop me a line with your comments. Once I have some feedback I'll pick a date, time and band for all of us to DX, and our loggings will be put into the OzRadio echo now being carried Australia-wide by many BBSs. I'd also like to hear from DXers who would like to do the same with HF ute traffic. This is the first time an event like this has been attempted in Australia, so let's show those Yanks that anything they can do we can do better!

☐ KHBI changes

The Christian Science Monitors have issued their W-91 sked effective to 29/3/92, and there are some minor changes with their broadcasts to Australia - KHBI are now heard between 0800-1000 on 15665 and at 1200-1400 on 15665.

☐ Hot Off The Press

The latest in a series of annual publications from the Fine Tuning group has just been released to the DX world. "Proceedings 1991" is a specialised book aimed at DXers looking to get more from their hobby. Fine Tuning's high standards assure that the articles and reports printed in this book represent the best possible DX information available, and the 1991 edition is no exception. Included you'll fine articles on tropical band propagation, grayline enhancement, the Beverage antennae, using shortwave radios in the classroom and modifications for the popular NRD-525. There are also reviews of the Racal RA-17, Philips DC-777 and Icom's IC-R71A and IC-R9000.

There's also a look at the new McKay-Dymek DR-333, a "black box" receiver without the usual knobs and switches - it's driven totally by a PC!

"Proceedings 1991" is available for $US19.50 plus $US3 surface mail or $US15.00 airmail. Write to *Fine Tuning Special Publications, c/- John Bryant RRT No.5 Box 14 Stillwater OK 74074 USA.*

☐ News From The SCDXC

From DX Post, the monthly magazine of the Southern Cross DX Club, Leigh Morris reports in his "Skywaves" column that Radio Bras has altered their English sked to North America. This is now heard at 1200 on 11745, with the European service at 1800 on 15265. Meanwhile over on the African continent, Zaire's Radio Kisangani is on 11454.9 from 0353 to 0446 with music and ads. They ID as "Ici-Kisangani" together with program previews.

Latest DX Post loggings to try for yourself include: 7295, RTV Malaysia in English with a good signal playing US Top 40 material; Voice of Nigeria on 7255 at 0609 in English; King of Hope on 6280 at 2000 with religious programs in English, together with heavy interference from a CW station; and Iceland on 9265 at 0730 with ID, news and weather in English for five minutes and then back into Icelandic.

As you can see, DX Post is an excellent magazine full of DX tips, so if you're looking for a club to join then you'll find their yearly membership fee of $25 well worth it. *Their address is GPO Box 1487 Adelaide SA 5001,* and mention CBA when you write.

☐ Radio Finland's W-91 Sked

Radio Finland broadcasts to Australia in English with the following sked through to 28/3/92: 0900-0925 on 21550 and 17800; 0925-0955 on 17800 and 15245; and 2230-2250 on 11755. They have at their disposal 3 x 500 kW, 2 x 250 kW and 1 x 100 kW transmitters feeding multi-element curtain arrays beaming around the world.

☐ DX News From AWR-Asia

KSDA has introduced their W-91 sked which sees DX Asiawaves aired every Saturday at 1615 on 11980 and 2330 on 15610, and Sundays at 0215 and 1815 both on 13720. Their current English schedule 0000-0100 on 15610, 0200-0300 on 13720 (Sat & Sun only), 1600-1700 on 11980, 1700-1900 on 13720 (Sat & Sun only) and 2300-0000 on 15225.

☐ Radio Pilipinas Starts QSLing

I've started seeing reports of QSL cards from Radio Pilipinas and just as this column is being finalised my own QSL arrived. It's actually a postcard with a confirmation typed on the back. At the time of writing their broadcasts are still test transmissions. Cards are signed by Evelyn S. Agato and Maribel Buling. See last issue's column for their sked, and the address is Sgt. Esguerra, Quezon City Metro, Manila Philippines 1103. Turn around time for my QSL was 26 days and no return postage was required.

☐ Yet Another New Station In The US

The push by religious organisations in the US to own a shortwave station goes on. US SW authority Glen Hauser says that co-ordinators of WWCR's PrayLine program plan to build their own SW station in Kentucky, USA. World Wide Gospel Radio has already been granted a construction permit and plan to convert two old 50 kW RCA MW transmitters across to shortwave.

☐ Voice Of International Peace On Shortwave

While on the subject of QSLs I was happy to see the arrival of my card from" Radio For Peace International". This station is supported by donations from listeners around the world and has been offering good reception here in Australia on 7375. Their current schedule is as follows: 21465 (USB) at 1200-1300; on 15030 24 hours daily; 13630 between 1800-0000 and 7375 (USB) at 0000-1200. Not all frequencies are active at the same time. Reception reports can be sent to *RFPI, PO Box 88 Santa Ana Costa Rica together with 3 IRC's.* A reminder that Glen Hauser's World Of Radio DX program is aired on Tuesdays at 2030, Fridays at 2100, Saturday at 1939 and Sunday 2230.

☐ Where No Broadcaster Has Gone Before...

From a report of DX Partyline on HCJB comes news that America's FCC plans to expand the mediumwave or AM broadcast band to 1705. Over the last decade many new stations have been added to the band, increasing congestion and interference as well as splitting the limited advertising revenue into even thinner slices.

The extension to 1705 will create another 10 channels for stations wishing to relocate to the newer segment. What it means for the listener is that anyone who wants to stay tuned to a relocated station will have to buy a new radio which covers the top-end. The idea has been in the planning stages for more than a year and is seen as a last attempt to revive the band.

However, the long term survival of the MW band seems shaky. With the technical superiority of FM being clearly preferred by the market, more than half of the AM stations to run at a loss according to a recent industry report. The FCC also hopes to encourage MW broadcasters to update their stations to include more modern technology, as those which move up the dial will face more stringent technical specifications.

Their payoff is an approval to use more powerful transmitters than their "low-band" counterparts, dramatically increasing signal reach and potential audience.

Even if accepted, this proposal will still take many years to implement, although Sony has already released several new AM receivers including the high band. The biggest part of the market to be converted will be car radios, and since the FCC estimate the average life of each car radio as five years any change-over will be a slow process.

What effect will this have down under? DoTaC have no plans at present to extend our own MW band, although for local DXers it opens up some new opportunities to hear US broadcasters between 1605 and 1705 kHz. But, will they be "mediumwave" or "shortwave" stations? DX clubs will have to argue this one out for themselves!

DX Tips And News

- ***As civil war continues*** in Yugoslavia, now is a good time to tune into Radio Yugoslavia while they are still on the air. Try their scheduled English broadcasts to this region between 1230-1300 on 17710 and 21605.

- ***Tenders for RA's*** two new additional 250 kW transmitters for Darwin have closed but no news of successful contractor as yet, although a contract has been let for building alterations to accommodate the new equipment.

- ***A report from Don Rhodes*** in "DXers Calling" says Deutsche Welle has changed their English broadcast to Asia and Australia. You should now tune between 2100-2150 on 6185, 9670, 9765, 11785 and 15350. Their other transmission continues at 0900-0950 on 21650, 17780, 17820 and 6160.

- ***Arthur Cushen*** reports that New Zealand's Print Disabled Radio ZLXA has been authorised to broadcast on 7295 during summer daytime. No official starting details were given but their current sked is 0400-0800 on 3935 during daylight saving time.

- ***Sydney has become*** one of the last metropolitan areas where two AM broadcasters will convert to FM under the Federal governments' controversial "auction" scheme. Music stations "classic hots" 2UW and "hits and memories" 2WS have each been awarded an FM licence. 2UW placed the largest bid and will have first choice of the two available frequencies. Both stations are expected to vacate their AM slots around April-May 1992, when 2PB and 2RPH will move onto 1107 and 1224 kHz firing through the ex-AMers' powerful transmitters.

- ***Regular reader*** Ian Baxter tells me that Sony doesn't intend to release their new ICF-77 shortwave set in Australia. While this decision isn't fixed in concrete I'm sure Sony would change their minds if they could see a demand for it. Meanwhile their other new release, the ICF-55, is due for release around Christmas time.

- ***More Glasnost-driven development*** in the shortwave world... America's "over the horizon radar" (OTHR) installation, nicknamed "The American Woodpecker", has been scrapped. If the Russian and Australia defence forces would only follow this example, our bands would be quieter (and the world might be a better place to live in, too!).

- ***The Federal Government*** has approved the establishment of a new broadcasting transmission agency to operate transmitters belonging to the ABC and SBS networks. Currently Telecom Australia maintains the sites under contract with DoTaC. Will this continue?

And with that,
another column is put to bed.
If you want to contact me
write to:

PO Box 108
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or
log onto the OzRadio forum
on a BBS near you.
or
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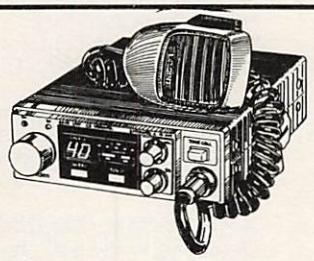

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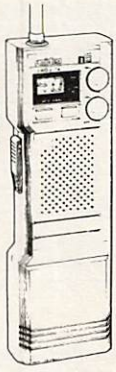

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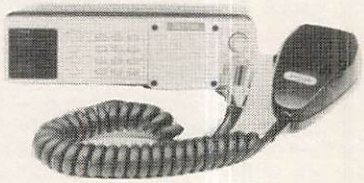

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spectrum anarchy

with Rod Fewster

FURIOUS FEWSTER TELLS IT AS IT IS...

* **Had a call** from Frank down on the Gold Coast regarding the 1/31 repeater. Seems that it's been off-air more often than not lately, and rumor has it that Philips-TMC have been switching it off because of interference to other (read, "paying customers") services on the Mount Cotton site. It would be a shame to see this repeater close down. It was Brisbane's first UHF-CB repeater and over the years has probably been the most reliable of them all. Many Gold Coast residents who travel up and down the Pacific Highway have come to depend on it, and it's also used fairly frequently by Police and the Ambulance Brigade.
* **Brisbane ACREM** have been asked to set up a display and give a talk on UHF-CB communications as part of a campaign by Queensland Police aimed at educating women about the dangers of driving alone. For several weeks Police have been handing out pamphlets which recommend in part that women travelling alone have phones or CB radios fitted to their vehicles so they can call for assistance in emergencies.
* **That's all well** and good, but CB transmissions and car-phone conversations are far from private, and it's an unfortunate fact of life that there are people out there who would be delighted to find a young girl stranded on a lonely road in the middle of the night. An increasing number of CB buyers these days are parents who are worried about their daughters driving home alone at night after work or college or whatever. Some of these undesirables are sure to have CB radios or scanners.
* **I usually recommend** a UHF system to parents who want to keep in touch with their daughters on the road, but I make sure that they understand that their transmissions can be heard by literally hundreds of people and suggest that they work out and use a personal code based on the Street Directory so that in the event of a breakdown the girl doesn't tell the whole world exactly where she is in plain language.
* **Guy from the Caboolture** (north of Brisbane) area didn't make too many friends when he told everyone on the 8/38 repeater in explicit detail what he was going to do to a regular user's young children recently. He was identified and several complaints were made about his threats, but nothing was done about it. That sucks !!
* **To my way of thinking**, any man who threatens to commit such atrocities must have them in his mind in the first place, and is capable of doing the deed.
* **I overheard** a couple of truckies discussing radar traps this morning. One claimed to have a "black box" he bought in Sydney recently for $400 which is guaranteed to fool all types of Police radar into thinking that you are doing whatever speed you program into it.
* **Sure**, such a "black box" is technically feasible, but for $400? No way!! There's one born every minute.

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Monitoring Military Satellites

Satellites - birds - eyes in the sky. Whatever you call them, they contain some of the most fascinating listening any monitor could ask for. That's right, they don't just carry TV, phone calls or data. And you don't need a dish or a specialised receiver to catch that bird.

So turn on that scanner, sharpen your pencils or fire up your computer database - because we're about to target the US Navy's famous FleetSatCom system! And if you've got the right gear, then here's another Bob Lopaka/CBA "hit-list" to get you started!

STRANGE SIGNALS

I first became aware of the existence of the Fleet Satellite Communications (FleetSatCom) network some years ago, during a "swap-session" with a few other scanner enthusiasts who live near me on Sydney's northern beaches. A fellow military radio buff had been casually scanning the 261 MHz band in AM mode, looking for military aero activity from the Richmond Air Base. There was activity on 261.7 MHz, one of the RIC channels, yet it was in narrow FM - and it certainly wasn't from Richmond! He put his Realistic PRO-2006 onto NFM, only to hear American accents and some very strange one-word callsigns. After some time at his listening post, my friend learned enough to ascertain that one or more of the stations was located in South East Asia.

About this time, the fraternity of contributors to various communications magazines - including the respected US publication Monitoring Times, Popular Communications and of course Australia's own CB Action - started to discuss the unusual activity on the 261 MHz military aero band. Before long there were some educated guesses being made as to what the transmissions were all about.

Our starting point was realized when some American monitors confirmed the transmissions as being from the ranks of the US military, and the name of the net as FleetSatCom.

Some time down the track came the Gulf War and that's when things really picked up. Military Airlift Command (MAC) C-141 Starlifters began surfacing on channels such as 261.450 and 261.850, with detailed discussions of cargo being ferried from the US mainland to the Gulf region. Some of the information appeared to be the sort of stuff you would expect to be labelled "classified", and restricted from our ears by way of digital voice protection or time division multiplex scrambling - but a lot of it wasn't!

Many times, one or both of the stations would forget to encrypt their voice transmission and the conversation would be heard loud and clear in the shacks of thousands of military monitors across the world!

When the Philippines suffered massive fallout of volcanic ash from Mt Pinatubo, in June-July 1991, it severely affected the Subic Bay Naval Base and the Clark Air Base (both American installations), causing the mass evacuation of the base by air and sea. In addition to the frenzied satellite activity relating to movement of men and equipment, many very "human" stories were copied by Australian and other worldwide monitors, as phone patches were placed through the FltSatCom from Clark Air Base personnel to phone numbers Stateside and to other South East Asian bases.

WHERE TO LISTEN

Many satellite transmissions of a military nature can be found within the bounds of the UHF military aviation band between 225-399.975 MHz. This can be narrowed down to an envelope of 260-264 MHz, where you'll find satellite downlink channels divided into four groups with phonetic tags: Alpha (260.350-260.850 MHz), Bravo (261.450-261.950), Charlie (262.050-262.550) and Delta (263.550-264.050 MHz).

Within each group are 21 channels (spaced 25 kHz apart) known as Alpha 1 through Alpha 21, Bravo 1 through Bravo 21 and so on. Transmissions through the satellites are in narrow FM mode, although there is also an amount of AM traffic.

THE FLEETSATCOM NETWORK

Seven FltSatComs have been launched, but only five of these are available to US military personnel. FltSatCom 5 has had its antenna destroyed, while FltSatCom 6 was lost in space when its booster failed. Each bird is "parked" in what is known as a geostationary or geosynchronous orbit. That is, it is located at a point some 36,000km above our planet's surface, the distance at which it remains almost exactly over the same earth location (instead of low orbit satellites which must be tracked as they fly overhead). Because a satellite in geosync orbit appears to remain "stationary" above us it can be easily accessed at any time.

FltSatCom 1 covers the "Pacific East" region and uses band Alpha; FltSatCom 2 covers the Indian Ocean and is heard on band Charlie; for the Atlantic Ocean region, craft use FltSatCom 3 on Bravo. FltSatCom 4 is used for "Pacific West", also on Bravo, and is the one which monitors in Australia and New Zealand can expect to hear. The "spare" bird, FltSatCom 7, is on Delta, while at the time of

continued over page...

Bob Lopaka sets his sights on FleetSatCom - the military satellite communication network. Here's how to listen, where to listen and what you'll hear!

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Supplied with quarter wave antenna, Nicad battery, AC charger, carry case, and belt clip.

SPECIFICATIONS

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Output power: 5 watts
Spurious Emissions: –60dB
Current Drain: 1.6 amps (high power)
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Frequency tolerance: 1 KHz or better

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Power source: 10.8 V DC 450mAH Nicad battery
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ACCESSORIES:

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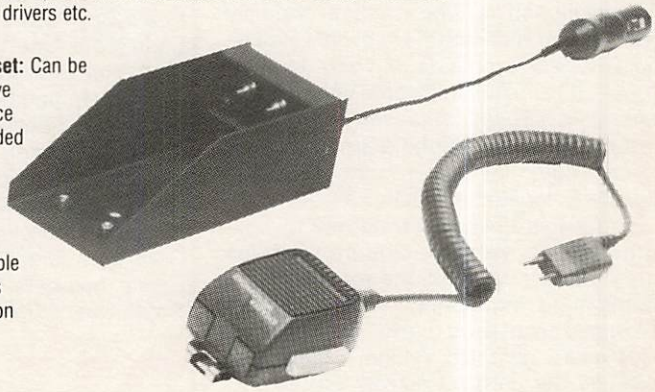
K 3095 Glass Mount Halfwave Antenna: Ideal for installations where mounting holes are undesirable. Also suit vehicles without "gutters". Antenna simply sticks on the outside of any window, coupling box sticks on the inside of the vehicle. RF energy is coupled through the glass with negligible loss. Recommended retail $79.

K 3090 Spare 10.8 volt 450mAH Nicad Battery: Ensure a charged battery is always on hand. Recommended retail $69.

C 5055 VOX Unit: Allows handsfree operation of the transceiver when using a headset. Ideal for hang glider pilots, rally drivers etc. Recommended retail $69.

K 5060 Communications Headset: Can be used either with or without above VOX Unit. (K 5070 single earpiece unit also available). Recommended retail price $55. ($49 for single earphone model).

C 5056 CTCSS Tone Squelch Board: Simply plugs into the transceiver. Any single sub audible tone from the 38 available tones can be used. Eliminates reception of non CTCSS transmissions. Recommended retail price $62.



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Monitoring Military Satellites

(continued from previous page...)

writing FltSatCom 8 was still on the ground and awaiting launch. The FleetSats are available to the US Army, Navy and Air Force, the Marines and the US Coast Guard. Control stations are located at Travis Air Force Base, Arizona; McGuire AFB, New Jersey; Ramstein AFB in Germany, and Kadena AFB, Japan.

Many of the satellites have several frequencies in addition to the 260 MHz downlinks, including 7 and 8 GHz (gigahertz, or 1000 MHz) as well as 20 and 44 GHz. Aerials used are both helix and deployable dish types.

Each FleetSat weighs some 5000 pounds and is powered by a 2.2 kW solar array. This powers the transponders and telemetry/control, while limited fuel supplies keep the bird in correct geostationary orientation. When that fuel expires, the satellite will slowly drift from its established orbit. The textbook life expectancy for the first FleetSat series is five years, although all satellites have exceeded this by at least a few years and some have remained in service for a further five years. The next series will have a projected life of some ten years.

Tuning In Down Under

Monitors Down Under can regularly hear operations on FltSatCom 4. Of the 21 channels in Bravo band (261.450 through 261.950 MHz, in 25 kHz steps), some are regularly used for specific purposes. By way of example, Bravo 1 (261.450 MHz) and Bravo 17 (261.850 MHz) are mostly used for phone patches, while B4 (261.525) is generally used for calling purposes. B8 (261.625) has been noted mostly with DVP encryption. MAC OPS, with the callsign "Tonight" comes up most frequently on B17. All the really juicy Clark Air Base activity prior to and during the evacuation of the US Forces in the Philippines was monitored on 261.675 MHz.

The channels to program into your scanner are as follows:

US NAVY FLEETSATCOM 4 (BRAVO BAND)

B1	*261.450*	*phone patch*
B2	*261.475*	
B3	*261.500*	
B4	*261.525*	*calling*
B5	*261.550*	
B6	*261.575*	
B7	*261.600*	
B8	*261.625*	*mostly DVP*
B9	*261.650*	
B10	*261.675*	
B11	*261.700*	
B12	*261.725*	
B13	*261.750*	
B14	*261.775*	
B15	*261.800*	
B16	*261.825*	
B17	*261.850*	*phone patch*
B18	*261.875*	
B19	*261.900*	
B20	*261.925*	
B21	*261.950*	

Falcon, Ramrod, Cobra And Friends

Stations I have logged include several Navy calls - which use three-digit identifiers - Atlantis (Control, Philippines), Clark (Clark Air Force Base), Duluth (possibly the USS Duluth, or the Duluth National Guard in Minnesota), Oil Pan (Army Transport at Pusan, South Korea) and Valdez (USS Valdez).

Some of the more common callsigns heard over FltSatCom are Cornice 01, 02 and 03; Ponzo (a female operator); Marksman, possibly located in the USA; N-Ops (Naval Operations); Ablaze (heard calling Marksman); and "Tonight", Pacific Control for Military Aircraft Command or MAC. Other calls noted include Falcon, Throttle, Ramrod, Cobra 91, Arizona Ranger, Big Freak, Hardshell, Mocassin, Big Wheel, Feedback, White Tree, Converse and Tasty! If you hear FleetSat conversations refer to being "in the plain", this means unscrambled or "clear" speech. And when operators refer to an individual they are called just that - "Individual". So you'll hear things like "Can I get a call through to Individual Wilson", or "This is Individual Stewart".

Above is a Boeing E-34 Sentry AWACS aircraft in NATO service.

Photo courtesy Australian Aviation Magazine

What You Need...

Any scanner capable of tuning UHF military aviation frequencies between 225 and 399.975 MHz, with selectable mode control so you can choose "FM narrow", will do the job. Scanners such as the Tandy Realistic PRO-2004/5/6, AR-1000/2500/3000, Yaesu FRG-9600 and the new Icom R-7100 are all excellent examples. Indoor antennas don't really work all that well when it comes to monitoring FltSatCom. An outdoor aerial is just about mandatory, but even then you may find that some antennas just aren't up to the job! Straight helical whips do not seem to perform well with FltSatCom, at least those that are "unity gain". Some high gain whips perform reasonably but, frankly, you will probably require either a discone or an active antenna to do the job properly.

Actually, all you really need from the discone aerial is the "disc" component, that top of the antenna which is horizontally-polarised. The disc elements will by themselves bring FltSatCom to your receiver very efficiently. In a properly set up shack, in most parts of Australia, signals received are almost as good as local police, fire or ambulance, and some are even better than the local product!

If FltSatCom interests you, and you have decided to pursue these fascinating military communications, attack the task with full vigour and the right equipment and you will be richly rewarded!

Powerband's Ken Reynolds writes on...

TIPS FOR ANTENNA TIPS

The subject of 'antennas' is probably one of the most controversial and commonly discussed issues of radio communications - not just in the CB world, but throughout the whole broadcasting industry. There is always some issue of disagreement or confusion, which, if handled incorrectly, can mislead a whole new generation of radio enthusiasts.

In all the years I have been writing for CBA - which includes being the Editor of this mag and Amateur Radio Action several years ago - there are lots of minor aspects of radio that always seem to get neglected because they appear to be too trivial to rate a mention. The little metal or plastic 'tip' that seals the end of your mobile whip antenna is just one of them. Trivial though it might seem however, losing the tip from your antenna can lead to some quite unexpected results which includes serious detuning of your antenna system.

This discussion was prompted by the recent acquisition of two UHF Yagi-Uda style beam antennae that were submitted for review - the names will go unmentioned for obvious reasons.

The first was a well presented 'long' Yagi - about three metres in length - which employed the familiar tubular aluminium elements with each element sporting a plastic cap at each end of the tubes. While this might appear a sensible addition to the structure by way of sealing the element ends and adding a 'finishing touch' to the array, the end result of this practice can produce unreliable characteristics in the long term. Look around, you may see plastic tips used on CB or amateur beam antennae, but it is unlikely you will find a 'professional' style array using anything of this nature.

Without turning this into a 'technical' discussion, those harmless looking little plastic tips on the ends of the elements can cause inconsistent performance results from array to array and in the long term they might just be responsible for a change in the SWR of the antenna which is actually brought about by the array's resonant frequency being altered.

Most readers will be aware that the element lengths of beam antennae are quite critical and must be maintained to within strict tolerances during manufacture, but what is not widely known is that the addition of the plastic end caps has a quite dramatic effect on the 'electrical' length of the antenna element. While the physical length of the element hardly alters as a result of plastic tip, the actual electrical coupling to the surrounding medium (usually air) is increased by the dielectric constant of the material from which the cap is made.

For example, air is considered to have a dielectric constant of 1 while polyethylene or poly-vinyl-chloride (PVC), the material from which most caps are made, has a constant of 2.5 or greater, meaning that the coupling effect to the atmosphere is noticeably greater when these materials are used. This means that the electrical length of the antenna elements has increased.

This increased length factor can be compensated for in the original design of the antenna and I am not suggesting that this has not been carried out by the antenna maker. However, the antenna element having had its electrical length increased by the addition of the tip must retain this characteristic for the life of the device. Here's the 'hook'. Most plastics 'age' quickly when exposed to constant sunlight and after a period of several months in the weather polyethylene frequently hardens and becomes brittle causing the cap to split and fall off the element. If this happens to one or several elements of the array, the effect will be to detune the antenna by changing the electrical lengths of the elements.

Readers who have ever tuned (SWeRed) a mobile antenna may have noticed the difference in SWR after the antenna has been 'trimmed' to a satisfactory state of tune and, having replaced the plastic tip, found the SWR has suddenly changed for no apparent reason. The frustrating part here is that when the tip is removed the SWR returns to its original reading.

For those who were not aware of this effect or why it happens, the explanation is that each time you make an adjustment to the antenna length it is necessary to replace the tip before taking the SWR reading, otherwise the measurement will not be valid for the very same reason the beam will be detuned with the end caps missing or damaged. Because of the construction of plastic covered, fibreglass mobile whips, the little plastic tip is a necessary part of the design to seal the internals from the effects of weather.

With mobile whips the tips still split with age, but by far the most common reason for loss of a tip is a low hanging tree or garage door. Having tuned the antenna properly the first time, the SWR should not change unless the whip is damaged and it is a good idea to glue the tip in place with contact adhesive or one of the silicone compounds. This will help maintain weatherproofing and prevent the easy loss of the tip.

The plastic covering of the whip also changes the coupling factor to the air and antennae. Using the cheaper, thin walled PVC heat shrinkable coverings the coating tends to harden and fracture after a few months of exposure to the weather. You will see dozens of them around patched up with PVC electrical insulating tape. If your antenna is preserved in this way you should check the SWR, because changing the covering material and its thickness can change the tuning of the whip to a noticeable degree. Even with the covering material, most of the effect is concentrated toward the tip of the radiator. The better alternative to taping-up an antenna is to replace the covering with a new piece of shrinkable plastic tube or, better still, replace the antenna because frequently by the time the damaged covering is

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vered water has entered the assembly and further damage ll under way.

ONA TIP EFFECT VOIDING THE POINT.

e metal or plastic tip on the end of your antenna is there very good reason and it's not just for looks. Known as the na Cap or Tip, it provides a very useful and quite technical ion - it helps prevent static electrical noise in the receiver n high power transmitter systems and it helps reduce the electrical corona that was first observed dancing around the y tips of broadcasting antennae in the early days of radio. engineers soon discovered that the addition of a metal re to the very top of these high power installations contained orona effect and in some cases rather large brass spheres installed for this purpose.

u will notice that even car radio broadcast antennas have orona cap and even stainless steel mobile whips carry either tal or plastic tip. Plastic and a variety of other materials will uce similar effects to metal.

e moral to the story is to avoid sharp, pointed projections at igh voltage points - usually the highest point - on transmit- nd receiving antennae.

a general rule, sharp pointed projections on antenna sys- should be avoided, especially at high voltage points which lly occur at the top most point of a mobile whip or, with Yagi antennas, at the end tip of each element. While this might ar a conflict in terms with beams - since we are avoiding ic tips - the elements of a beam are usually relatively large ameter and because of the tubular shape are naturally ded of at the ends. The only real objection to the plastic tips s case is that they age quickly and often fall off the element detuning the array. Were the tips made from some long life ic like Delrin, adding tips to your Yagi can be a good idea tends to damp out wind noise produced by the air blowing ss the end of a resonant column of air contained within the ent.

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WORDMAZE

Having read Ken Reynold's review of the new 27MHz 40 channel TENVOX AM rig on pages 18/19, you now have the chance to win one courtesy of Truscott's Electronic World together with a Mobile One DX160SDMPK Superhelical mobile whip courtesy of Dick Smith Electronics. Ok, so it's not exactly $1,000 worth of goodies but it's better than a kick in the bum isn't it. The TENVOX is a great little AM rig while Mobile One's whips are as good as they come.

...all you need to win are some correct answers to some easy questions and a bit of luck when we pull the entries out of the mailbag.

We will hold all entries until January 14 and the rig and antenna will go to the sender of the first envelope opened after that date which contains all the right answers ***(and has all the answers circled in the wordmaze).***

1.What type of receiver (three letters only) is referred to in this issue as a "Volksradio"?

2.What company makes the VHF airband transceiver reviewed in this issue?

3.What's the first name of the guy on the Gold Coast who spoke to Rod Fewster about the 1/31 repeater?

4.What is the general name applied to directional antennas and discussed in this issue?

5.Which contributor (surname) wrote "in an open field, with line of sight..."?

6. What are the missing letters in the sentence, "Transmissions through the satellites are in narrow ?? mode...?"

7.What was it (three letters) that "caught the attention of Greg Towells"?

8.What is the name (three letters) of one of the frequency registers discussed in the "Are They Really Worth The Money" article?

9.What company manufactures the UHF portable reviewed in this issue.

10.What is the first name of the guy from Warragul, VIC who wrote to Russell Bryant?

Don't forget, you must answer all the questions and ***you must also circle them in the wordmaze.*** The answers to all the above are to be found within either this or the previous issue of CB Action (aren't you sorry you didn't buy our last issue)!

U	N	I	D	E	N	R	G	I	F	G	G	M	I
N	E	F	R	M	C	I	C	I	C	O	M	R	A
K	O	M	R	U	Y	C	C	A	C	D	Y	I	E
F	M	I	N	A	I	I	E	S	M	D	S	G	A
U	A	A	A	C	N	D	E	A	A	R	D	N	O
G	R	F	M	N	C	K	C	A	F	D	R	A	D
A	C	K	M	M	S	U	R	L	F	N	E	C	N
E	U	E	A	U	O	I	S	M	C	E	C	A	L
I	S	G	N	Y	N	G	S	S	A	D	C	S	S
N	F	U	S	Y	N	A	M	S	N	I	E	D	M
E	D	A	U	D	Y	Y	Y	S	M	A	C	F	A
C	D	D	D	Y	L	D	Y	M	E	I	D	R	N
A	D	N	N	C	F	A	G	E	I	S	A	A	R
D	O	I	E	G	C	A	E	L	F	M	G	R	F

1.....

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NOTE: We stress, the correct answers ***MUST*** be circled in the Wordmaze - photostat copies are acceptable, however, only one per reader. Where we find a reader sending in more than one photostat entry all that reader's entries will be excluded from this and future wordmaze competitions. You can of course send in as many entries as you like using the original page torn from the magazine...that way we get to sell more of 'em.

The closing date is January 14 and the winner will be the first correct entry opened after that date. The draw will be conducted in the offices of CB Action and the results, answer and winner will be published in the following issue.

Entries should be addressed to:
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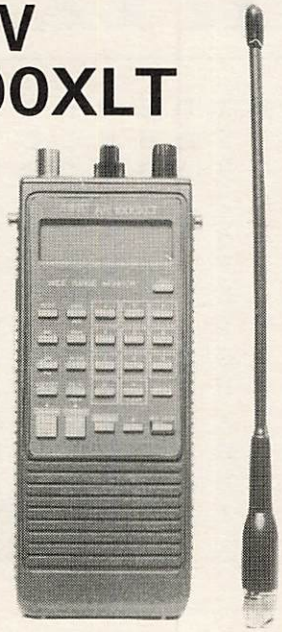

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dx international

DX - UP, DOWN and AROUND 11 METRES ...*with Jack Haden*

As I write this the 11 meter band still remains as unpredictable as ever with regard to stable openings despite coming into the "prime" of the DX season, the summer months. Over the past few weeks there hasn't been much sign of overall improvement, erratic openings to Africa and the ever present rabble from Europe give us some small incentive to switch the radio on.

If the band doesn't start to show signs of real life soon some of the big DX groups will start to feel the pinch when some DXers decide against renewing their membership dues through lack of interest. Already some of the "fly-by-night" clubs have bitten the proverbial dust. To the old timers on the band this is nothing new, the same thing happened back in cycle-21.

I have received no response at all from readers with regards to the stupid "Freeband" movement which suggests it's nothing more than a "fad" or an unobtainable dream devised by some hyperactive Europeans who have little else to do with their spare time. In my view they would be better off studying for their amateur license and thus get maximum use from their radio, so long as they leave their stupid habits and ideas behind on 11 meters! As I have previously mentioned, when this cycle-22 finally goes down the gurgler so too will the silly "Freeband" concept.

AFRICAN & INDIAN OCEAN REGIONS

- Some excellent openings via the longpath in our early morning to early afternoon period have given a few the chance to work into ***Northern Africa.***
- ***Ceuta Melilla*** has been about on a regular basis and at 2321z I heard 1O6-AT-1O9 operated by Ramon on the band. He was five by nine plus for over one hour. Ramon was closely followed by the AV-15O in the Canary Islands and at 2345z was a good five by nine also. Later at O111z Alfonso, signing as the 24-AT-149, also from the Canary Islands, was a fair five by five peaking eight at times.
- The West African country of ***Morocco*** was logged at O115z by way of Jose, who was signing as 76-AT-1O1. He was a poor four by two at the time and fading quite badly. The best times for Morocco are via the longpath from around daylight through to 233Oz or thereabouts.
- Quite a lot of activity has been noted from the ***Madeira Islands*** and at O118z I noted 119-AT-1O9 operated by Joao coming in at a good five by five. Not long after at O228z Ricardo, signing as 119-AT-1O1, was logged with a poor three by one peaking two report, but still workable.
- Much needed activity from the southern part of Africa has been very poor to say the least, although ***Namibia*** was about the band at O655z by way of Peke, who operates as the 74-SWA-1O1, some 25O miles north of ***Walvis Bay***. Peke was a good five by six and despite some modulation problems managed to put a few people from eastern Australia through for a new country. Don't forget, no callsign on the envelope for this country.
- ***Botswana*** was noted at O729z by way of Al signing as the 1O5-SI-6O6. He was a poor four by one at the time and quickly faded out. Al was operating from a mobile in the north of the country.
- After an absence from the radio for some two years, Mick has appeared back on the band from ***Harare,*** the capital of ***Zimbabwe***. Still signing as the ZBW-1O3, Mick was a fair five by two at O633z and was looking for some old mates in Australia at the time.
- Some rather sporadic activity has been noticed from the ***Comoros Islands*** by way of 185-AT-1O1 operated by Chek. At O611z he was a poor three by one and didn't improve any. Be cautious when sending QSL's to this country.
- As usual the signals from ***South Africa*** has been about with the best signal belonging to Debbie, the 44-AT-1O9. Debbie was five by nine plus 1OdB at O7O1z.

MIDDLE EAST & ARABIA

- The band openings to this region have been unreliable of recent times, not much in the way of rare DX has surfaced from here. The regulars from ***Lebanon, Israel, Kuwait*** and the ***United Arab Emirates*** have been about but very poor in the signal strength department. The best signal logged was from regular DXer from ***Israel***, the DELTA STATION, operated by Tolly. At O849z Tolly was a fair five by five. At 0955z I heard quite a few Europeans calling a station in ***Egypt*** with little success. Maybe a slim, maybe not, worth looking for just the same.
- If you worked a station signing as YE-1O1 in ***Yemen*** then you've been had, this one is a slim doing the rounds. Last heard the station was rumored to be in either ***Sardinia*** or ***Sicily Island***.
- Another slim is 15O-ME-1O1. He was heard on a number of occasions in late October, early November. If you've worked this one then you can forget about a QSL as 15O-ME-1O1 is somewhere in ***Indonesia, not Bahrain.***
- No further activity has been reported from the 117-AT-1O1 in ***Egypt.*** Maybe a slim, it would be a case of work it while you can and worry later.

EUROPE

- The general noise from ***Italy, France, UK etc.*** has been about, on odd times via the longpath but generally confined to the late afternoon early evening shortpath openings, however, there has been some interesting DX mingled in with the western Europeans.
- As things settle down in Eastern Europe a number of rare and semi-rare DX countries are rapidly appearing on the band. At 1112z I logged Mike, operating as 31O-VIC-16, from ***Riga***, the capital of ***Latvia.*** Mike was a good five by six at the time and had quite a pile-up on his hands. Shortly after I noted 310-AL-101, also from Riga, and at 13O3z was a fair five by three report. He too was doing brisk "trade" with stations in Australia and the Pacific region.
- Tom, the 3O4-ES-1O1, is still busy on the band giving people a chance to secure ***Estonia*** for a new one.
  At O826z he was a good five by three and the signal peaked at a nine by 1O43z only to fade off to a three by one by 13O6z, not a bad effort as he worked near 200 contacts in this period. Let's hope the QSL cards start to filter through soon.

(continued over page...)

dx international

- Also from ***Estonia*** is 3O8-RC-1O1 operated by Alex. At O711z Alex was a good five by five and had quite a manageable pile-up on his hands. It appears that the RC Group has different prefixes for the USSR countries so beware.
- A station weak in the noise was heard trying to work a huge pile-up of excited Europeans at O64Oz from ***Albania***, signing as 251-AT-??? (didn't get the suffix). Operated by Sergio it was clear to all in the Pacific that there was little if any chance of making it through the hurly burly of European rabble. Some of the operating standards used by some were just plain ridiculous, constant calling and over driven amplifiers being the main problem. QSL route via 1-AT-O68.
- The ***Ukraine*** in the ***USSR*** was noted via 315-AT-1O4 at O955. He was a fair five by five and was busy working 31O-FR-O1, operated by Jack in ***Latvia***, who was also a good five by five here.
- ***Czechoslavakia*** appeared by way of 179-SR-1O1 at 1123z. Again the Europeans had the monopoly on the frequency and soon made the five by two signal from the Czech station unreadable here in the Pacific.
- Quite a few stations have been logged from ***Poland***, and at O855z I heard Cirill signing as 161-SA-O1O from ***Gdansk***. Cirill was a reasonable five by two and was looking for the Pacific region at the time. At 1218z I noted 161-EE-333 also in Poland with a good five by six peaking a seven at times.
- The ***Arctic Circle*** was logged at 1149z by way of Paul operating as 2O-AT-1O3 in the ***Norwegian*** perimeter of the circle. He was a good five by nine at the time and had no shortage of takers to this calls.
- The Greek island of ***Crete*** was heard around 1O29z by way of station SV-O1. Although a poor four by two, he had quite a throng of Europeans in hot pursuit.
- A good strong signal via the longpath came at 223Oz by way of Joe, the 55-AT-125 in ***Gibraltar***. Joe was a healthy five by nine at the time but soon faded out by 23OOz.

CENTRAL/SOUTH AMERICA & THE CARIBBEAN SEA

- The past few weeks have seen the band pick up quite a bit to this region with some huge signals about, some of the best coming from ***Brazil*** and ***Argentina.***
- A good strong signal from ***Bolivia*** was logged at O3O5z by way of George, who was signing as the JS-3. He was five by nine plus 1OdB and was looking for Pacific Islands only at the time.
- ***Paraguay*** was heard at O346z with a big five by nine plus signal from Eliza, who operates at ***Asuncion***, the capital, signing as the EG-9O9. Eliza has some troubles with her English but managed to secure a couple of Spanish-speaking stations here in Australia which made her day.
- A big gun signal from ***Uruguay*** was noted by way of 12-AT-11O operated by Luis at 224Oz. Luis was a solid five nine plus 2OdB and had quite a number of contacts into Australian and the Pacific region.
- ***Chile*** has been active by way of 32-AT-121 Marcos and at O411z was a steady five by nine plus. He was soon followed by Sergio, who signs as 32-AT-138, and again a good five by nine plus signal prevailed. Both operators are in Arica on the Pacific coast of Chile.
- As usual the big signals from ***Brazil*** have been about with Marcos the 3-AT-14O being the strongest heard at 2241z with a whopping five by nine plus 2OdB at the time.
- ***San Andres Island*** in the Caribbean appeared on the band by way of Julio, who signed as the 81-ISA-1O2, and at O233z he was a fair five by four report which was a good effort considering he was using only 10 watts to a dipole. The island of ***Saint Vincent*** appeared at 2355z with Donald signing as the J8C-3O4. Although only four by three, Donald had no shortage of takers to his calls with his signal building up to a five by five at OO2Oz.
- The ***British Virgin Islands*** is still about the band for those who still need this for a new one. At O445z the 128-AT-1O1 operated by Worrel was about and a good five by three peaking a five signal ensued for about one hour.
- As usual quite a number of strong signals are still coming out of ***Guatemala, Honduras, Costa Rica, Panama*** etc. for those who are still in need of these.

ASIA & THE PACIFIC REGION

- By far our own region has been performing the best on the band with an abundance of good signals from a wide variety of places with the Pacific Islands coming in best during daylight hours.
- ***Norfolk Island*** appeared rather briefly on the band (with some questioning the credibility of the station) at O115z signing as NUMBER-7. Judging by the thick ***New Zealand*** accent, I, and a lot of others, suspect this was a slim from the land of the long white cloud. Work it now and worry later, who knows?
- A lot of activity from the ***Marshall Islands*** has been noted with a good signal from KX-519 operated by Steve on ***Majuro***, the capital of the Marshalls. At O431z Steve was a good five by eight here. Also from Majuro is 132-SK-1O1 operated by local islander Murjel. At 2234z Murjel was a good five by six.
- ***Western Kiribati*** has been well represented by Ramete, who signs as the 224-AT-1O3, from ***South Tarawa Atoll*** in the ***Gilbert Group.*** At O349z Ramete was a good five by seven report.
- ***Chuuk Island (formerly Truk Island)*** in the ***Eastern Caroline Islands*** has been active with Blacky the 23O-AT-1O1 leading the way. At O333z he was a good five by four from ***Moen***, the capital of the Chuuk Group of islands.
- Popular ***Papua New Guinea*** station 1O1-AT-1O1 operated by Patrick has been about from time to time and at O208z Patrick was his usual strong five by nine report.
- Plenty of activity from ***Guam*** by way of 62-AT-1O5 was noted at 213Oz with a good five by eight report from Anita. Her signal held quite well peaking 1OdB over at 2155z.
- ***Saipan,*** in the ***Northern Mariana*** group, was logged at O32z with station KH-911 operated by Joe peaking a good five by nine on the meter. Joe is a Filipino cook working at one of the major tourist hotels on Saipan and uses his radio to talk to relatives in Manila.

A small amount of activity was heard from ***Easter Island*** at 2255z with Luciana signing as 144-AT-1O4. Luciana was a good five by six at the time and was soon followed by CI-OO1 also on Easter Island with a five by two signal at 2311z.

- ***South Korea*** appeared on the band at O838z by way of Mr Ko, operating as the 1OO-AT-1O2 from Buchon. He was five by nine at the time and looking for some African DX.
- ***Hong Kong*** was logged at O849z with Larry the 6O-RC-1O1 leading the way. Larry was five by five and working quite a number of Australian stations. Also from Hong Kong was a maritime mobile station "MIKE-OSCAR" operated by Elias aboard a cargo ship bound for Hong Kong harbor. At O935z he was five by seven.
- The Russian port of ***Vladivostok*** has been about by way of Mike signing as the 3O2-ON-1O1. At O51Oz Mike was five by nine plus 1OdB and requests SASE and the usual one $US with all cards sent.
- The ***Asian Republics*** of the USSR have been about in abundance and by now most good DXers should have them in the bag so-to-speak as their signals have been very strong at times. At 1O26z I logged 3O6-NR-111 in ***Georgia*** on the band, operated by Alex. He was a five by nine plus 1OdB at the time and had quite a pile-up of Pacific region stations in hot pursuit.
- ***Tadzakistan*** is also about on a regular basis with Serge, signing as 313-AT-1O2, being most active. At 0916z Serge was a solid five by nine. His QSL manager is 1-AT-157 in Italy. Also active from Tadzakistan is another big signal from Alex the 313-AT-1O1 and at 1111z he was five by nine also.
- Another easy one to bag is ***Kirghizikstan*** in the USSR. At 1311z Vlad the 3O9-AT-1O2 was active with a fair five by three report. QSL cards go to his manager the 1-AT-41O in Italy. Another to look for is Fred the 3O9-NS-1O1 and at the early hour of O324z was a good five by eight here.
- ***Asiatic USSR*** has quite a number of operators from various regions. At O844z I noted Yuri, signing as 3O2-SA-O12, working a pile up. Yuri was five by seven and requests that all cards go to his manager 161-SA-010 in Poland. Later, at 1O15z I heard 3O2-RS-O6 operated by Alex, who had quite a small pile-up to deal with. Alex was five by eight at the time and was quite busy.

A much sought after card by those DXers in the Asia/Pacific region is from Goree Island off the coast of Senegal, West Africa.

DXPEDITION NEWS

- ☐ ***Not a lot happening*** *in this section, most likely due to the poor conditions on the band. People are not going to shell out money and time for DXpeditions if they are only going to work a handful of contacts. With the decline of cycle-22 no doubt DXpedition activity to rare locations will decline also.*
- ☐ ***Azerbaijan*** *appeared on the band by way of 3O3-AT-DX on the 06, 12 and 13 October, operated by Alex. I logged it many times with a variety of signal reports, QSL via "mail-box" Italy, whatever that is.*
- ☐ *The* ***Soviet Ukraine*** *was activated by Alex signing as 315-RC-OOO on 6 October. Alex was a poor four by one at 1158z, QSL route not known.*
- ☐ ***Albania*** *appeared on 13 October by way of Simon, who signed as 251-AT-DX, and at 1115z was a fair four by two. Confusion erupted when it was discovered that Simon was in fact working split frequency. I found at times he was either listening up five or 10 Kilohertz. QSL cards go via 1-AT-88O.*
- ☐ ***Leichenstein*** *appeared briefly on 19 October signing as 4O-AT-Jam and at 1123z was a poor three by one, QSL route unknown.*
- ☐ ***South Korea*** *was activated on a DXpedition category by Hong, who signed as the 1OO-RC-0 on 27 October. Hong was five by eight at O5OOz and requests that cards go via 1-RC-OO6 in Italy.*
- ☐ ***Sri Lanka*** *had still not appeared in the period 6 October to 25 October as planned by way of 13-AT-174/177. Seems this one may have fell through. If you were lucky or hear it at a latter date then cards go via 13-AT-OOO in Germany.*
- ☐ ***Zimbabwe*** *was scheduled to appear over the period 27 October to 16 November as the 85-AT-DX operated by 26-AT-429. I listened over the period 27 to 28 October but heard nothing, perhaps they were running a bit late. Cards go via 26-AT-429.*
- ☐ ***Well that wraps it up for 1991. My special thanks go out to those who kept me informed over the year and may you all have a happy and prosperous festive season. Good DX and see you in 1992. 73 Jack, Republic of Nauru, Central Pacific.***

AUSTRALIAN UHF REPEATER LIST

NOTE: Corrections and updates may be sent to: CBA Repeater Listing, PO Box E160, St James, NSW 2000.

ACT

Canberra	2/32
Canberra	8/38

New South Wales

Albury	6/36
Armidale	4/34
Barraba	6/36
Bathurst	8/38
Bega	6/36
Belbora	1/31
Binya	3/33
Blue Mountains	2/32
Bombala	8/38
Booral	7/37
Bowral	6/36
Braidwood	
Brewarrina	1/31
Brindabella Ranges	7/37
Broken Hill	4/34
Broken Hill	7/37
Buladelah	7/37
Casino	6/36
Cobar	8/38
Coffs Harbour	6/36
Coolah	6/36
Cooma	4/34
Coonabarabran	4/34
Corowa	2/32
Corowa	5/35
Corwa	7/37
Deepwater	5/35
Deniliquin	1/31
Dungog	3/33
Eden	2/32
Glen Innes	7/37
Grafton	8/38
Grenfell	1/31
Gundagai	7/37
Gunnedah	2/32
Guyra	1/31
Warden	1/31
Hampton	1/31
Hay	4/34
Inverell	2/32
Jindabyne	1/31
Junee	5/35
Kariong	8/38
Lismore	2/32
Manilla	3/33
Monkey Hill	6/36
Mt Lambie	2/32
Murrirundi	3/33
Muswellbrook	4/34
Narrabri	2/32
Narranderra	8/38
Narromine	5/35
Narromine	6/36
Newcastle	1/31
Newcastle	2/32
Newcastle	5/35
Newcastle	6/36
Nundle	7/37
Orange	3/33
Port Macquarie	2/32
Sydney	5/35
Sydney (south)	1/31
Sydney (west)	3/33
Sydney (outer-west)	4/34
Sydney (north)	7/37
Tamworth	4/34
Tenterfield	3/33
Tumbarumba	3/33
Tumut	6/36
Tweeds Heads	4/34
Wagga Wagga	1/31
Wagga Wagga	5/35
Walbundrie	2/32
Walcha	2/32
Walcha	6/36
Walcha	8/38
Warrumbungles	1/31
Wingham	1/31
Wilcannia	1/31
Wollongong	8/38
Northern Territory	
Bushy Park	1/31
Darwin	1/31
Erldunda Station	3/33
Katherine	2/32
Maryvale Station	4/34
Mt Swan	2/32

Queensland

Alpha	2/32
Atherton	8/38
Amiens	8/38
Ayr	3/33
Barcaldine Downs	1/31
Bathurst Heads	1/31
Bauhina Downs	4/34
Biloela	7/37
Blackall	8/38
Blackwater	6/36
Brisbane	1/31
Brisbane	5/35
Brisbane	7/37
Bundaberg	4/34
Bundaberg	7/37
Cairns	3/33
Chinchilla	8/38
Clermont	6/36
Clermont	7/37
Crows Nest	6/36
Dimbulah	6/36
Dirranbandi	8/38
Double Island Point	3/33
Edward River	3/33
Emerald	8/38
Gladstone	6/36
Gold Coast	3/33
Goondiwindi	4/34
Gympie	2/32
Gympie	5/35
Gympie	7/37
Hervey Bay	8/38
Hughenden	1/31
Ingham	2/32
Inglewood	1/31
Innisfail	1/31
Ipswich	4/34
Jericho	4/34
Kilcoy	3/33
Lakeland Downs	2/32
Longreach	3/33
Mackay	3/33
Mackay	6/36
Marlborough	2/32
Maryborough	6/36
Maxwelton	2/32
Miles	6/36
Monto	3/33
Moranbah	4/34
Moura	1/31
Mt Isa	1/31
Mundubbera	6/36
Murgon	7/37
Quilpie	2/32
Rockhampton	1/31
Rockhampton	4/34
Roma	1/31
Springsure	3/33
Sunshine Coast	6/36
Sunshine Coast	8/38
Tambo	6/36
Taroom	2/32
Thargomindah	6/36
Toowoomba	2/32
Toowoomba	4/34
Townsville	1/31
Townsville	4/34
Wavell Heights	2/32
Warwick	1/31
Wide Bay	1/31
Yaraka	7/37

South Australia

Adelaide	1/31
Adelaide	3/33
Adelaide	5/35
Angaston	4/34
Blinman	3/33
Carrietown	1/31
Ceduna	1/31
Clare	7/37
Cleve	2/32
Coonalpyn	6/36
Coppudurba Hill	1/31
Hawker	7/37
Kangaroo Island	4/34
Manum	8/38
Mt Bryan	8/38
Mt Gambier	5/35
Mt Gambier	7/37
Myponga	2/32
Naracoorte	4/34
Orroroo	2/32
Port Lincoln	8/38
Port Pirie	4/34
Renmark	6/36
Snowtown	6/36
Tarcoola	6/36
Wilkatana	8/38
Yorketown	7/37

Tasmania

Burnie	8/38
Central Highlands	7/37
Devonport	1/31
East Coast	6/36
Flinders Island	1/31
Hobart	1/31
Hobart	5/35
Launceston	2/32
Launceston	6/36
Midlands	4/34
North East Coast	3/33
North West Coast	4/34
North West Coast	6/36
Sandfly	2/32
West Coast	2/32

Victoria

Alexandra	1/31
Ballarat	2/32
Ballarat	5/35
Bairnsdale	7/37
Beech Forest	3/33
Bendigo	4/34
Cavendish	8/38
Currajung	4/34
Echuca	6/36
Euroa	3/33
Falls Creek	3/33
Foster	6/36
Geelong	4/34
Halls Gap	6/36
Hamilton	5/35
Harcourt	8/38
Hawkesdale	4/34
Horsham	3/33
Kerang	2/32
Lavington	4/34
Mansfield	2/32
Melbourne (north)	1/31
Melbourne (metro)	3/33
Melbourne (metro)	5/35
Melbourne (south)	7/37
Mildura	3/33
Moe	2/32
Mornington Pen.	8/38
Mortlake	7/37
Mt Cann	8/38
Mt Concord	6/36
Mt Delegate	3/33
Mt Terrible	8/38
Myrtleford	8/38
Penshurst	1/31
Shepparton	7/37
St Arnaud	1/31
Swifts Creek	1/31
Talangatta	7/37
Wangarrata	6/36
Waubra	7/37

West Australia

Albany	3/33
Augusta	7/37
Bencubin	2/32
Boyup Brook	4/34
Bunbury	2/32
Carnamah	2/32
Carnarvon	2/32
Coolgardie	7/37
Darkin	6/36
Denmark	1/31
Esperance	4/34
Kalgoorlie	2/32
Kambalda	1/31
Katanning	1/31
Kellerberrin	1/31
Kulin	4/34
Lancelin	4/34
Mandurah	7/37
Manjimup	6/36
Margaret River	6/36
Meekatharra	1/31
Merredin	2/32
Mia Mia	1/31
Mt Manypeaks	6/36
Mt Barker	5/35
Mt Barrow	7/37
Mt Saddleback	1/31
Mt Solus	4/34
Nannup	2/32
Perth	1/31
Perth	3/33
Perth	5/35
Perth	8/38
Ravensthorpe	8/38
Stirling Ranges	7/37
Wickham	1/31
Wongan Hills	8/38
Wyalkatchem	6/36
York	7/37

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